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# Department of Radiology-Annual Report-July 1, 1990 to June 30, 1991

David C. Levin  
*Thomas Jefferson University*

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# DEPARTMENT OF RADIOLOGY

## *ANNUAL REPORT*

JULY 1, 1990 - JUNE 30, 1991

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

## DEPARTMENT DIVISIONS AND DIRECTORS

General Diagnostic Radiology	Robert M. Steiner, M.D.
Breast Imaging	Stephen A. Feig, M.D.
Body CT	Richard J. Wechsler, M.D.
Neuroradiology/ENT Radiology	Carlos F. Gonzalez, M.D. Vijay M. Rao, M.D.
Cardiovascular/Interventional Radiology	Geoffrey A. Gardiner, Jr., M.D.
Ultrasound	Barry B. Goldberg, M.D.
Magnetic Resonance Imaging	Donald G. Mitchell, M.D.
Pediatric Radiology	George W. Gross, M.D.
Physiological Research	P. Macke Consigny, Ph.D.
Radiological Physics	John M. Boone, Ph.D. Simon Vinitzki, Ph.D. Talin A. Tasciyan, Ph.D.

## DEPARTMENTAL COMMITTEES AND CHAIRMEN

Advisory Committee	Alfred B. Kurtz, M.D.
Education Committee	Vijay M. Rao, M.D.
Research Committee	Barry B. Goldberg, M.D.
Residency Selection Committee	George W. Gross, M.D.
Quality Assurance Committee	Paul W. Spirn, M.D.
Computer Committee	Gary S. Shaber, M.D.

## DEPARTMENT FULL TIME FACULTY

### Professors

David C. Levin, M.D.  
Stephen A. Feig, M.D.  
Barry B. Goldberg, M.D.  
Carlos F. Gonzalez, M.D.  
Alfred B. Kurtz, M.D.  
Esmond M. Mapp, M.D.  
Vijay M. Rao, M.D.  
Robert M. Steiner, M.D.  
Richard J. Wechsler, M.D.

### Research Professor

Gary S. Shaber, M.D.

### Clinical Professor

Mark M. Mishkin, M.D.

### Professors Emeriti

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

### Honorary Professor

A. Edward O'Hara, M.D.

### Associate Professors

John M. Boone, Ph.D.  
Geoffrey A. Gardiner, Jr., M.D.  
George W. Gross, M.D.  
David Karasick, M.D.  
Stephen Karasick, M.D.  
Anna S. Lev-Toaff, M.D.  
Donald G. Mitchell, M.D.  
Laurence Needleman, M.D.

### Research Associate Professors

P. Macke Consigny, Ph.D.  
Robert J. Harford, Ph.D.  
Simon Vinitzki, Ph.D.

### Assistant Professors

Archibald A. Alexander, M.D.  
Joseph Bonn, M.D.  
Emily Fox Conant, M.D.  
Rick I. Feld, M.D.  
Adam E. Flanders, M.D.  
Ethan J. Halpern, M.D.  
Thomas G. Helinek, M.D.  
Raymond M. Montecalvo, M.D.  
Catherine W. Piccoli, M.D.  
Bhaskara K. Rao, M.D.  
Mark E. Schweitzer, M.D.  
Marcelle J. Shapiro, M.D.  
Paul W. Spirn, M.D.  
Kevin L. Sullivan, M.D.  
Talin A. Tasciyan, Ph.D.

### Clinical Assistant Professors

David P. Friedman, M.D.  
Sharon R. Segal, D.O.  
Lisa M. Tartaglino, M.D.  
Terri Tuckman, M.D.

### Instructors

Saundra M. Ehrlich, M.S.  
Jane S. Hughes, M.D.  
Cindy Isaacson, M.D.  
Jason E. Sagerman, M.D.  
Annina Wilkes, M.D.  
Elaine Wolk, 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., Associate Professor of Surgery [primary]  
Associate Professor of Radiology [secondary]
- Donald Myers, M.D., Assistant Professor of Neurosurgery [primary]  
Instructor in Radiology [secondary]
- Chan Hee Park, M.D., Professor of Radiation Oncology and Nuclear Medicine [primary]  
Professor of Radiology [secondary]
- Joel S. Raichlen, M.D., Clinical Assistant 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]
- Madhukar L. Thakur, M.D., Professor of Radiation Oncology and Nuclear Medicine [primary]  
Professor of Radiology [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., Associate Professor of Obstetrics and Gynecology [primary]  
Associate Professor of Radiology [secondary]

## **ADJUNCT FACULTY**

### **Adjunct Professors**

- Dov Jaron, Ph.D. (Drexel University)  
Vernon L. Newhouse, Ph.D. (Drexel University)  
John Mitchell Reid, Ph.D. (Drexel University)  
Joseph L. Rose, Ph.D. (Drexel University)  
Henrietta Rosenberg, M.D. (Children's Hospital of Philadelphia)  
Melvin Tecotzky, Ph.D. (Agfa-Gevaert)

### **Adjunct Associate Professor**

- John M. Krall, Ph.D. (American College of Radiology)

### **Adjunct Assistant Professors**

- Paul A. Dobbins, M.S.S.B., F.R.C.R. (Plymouth, England)  
Kawan Soetanto, D.Sc., M.D. (Drexel University)  
Harry Zegel, M.D. (St. Agnes Hospital)

### **Adjunct Clinical Professor**

- S. Bruce Greenberg, M.D. (St. Christopher's Hospital for Children)

**RADIOLOGY RESIDENTS**  
**1991-1992**

Rajesh I. Patel, M.D., Chief Resident  
Robert J. Rapoport, M.D., Chief Resident

**FIRST YEAR RESIDENTS**

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

**SECOND YEAR RESIDENTS**

Jeannete G. Greer, M.D.  
Bruce E. Hall, M.D.  
Joseph F. Mammone, M.D.  
James T. Tsatalis, M.D.  
Corinne B. Winston, M.D.

**THIRD YEAR RESIDENTS**

Daniel M. Golding, M.D.  
Eric Huettl, M.D.  
Rajesh Patel, M.D.  
Robert J. Rapoport, M.D.  
Evan S. Siegelman, M.D.

**FOURTH YEAR RESIDENTS**

Stephen F. Domiano, M.D.  
Vikram S. Dravid, M.D.  
Andrew S. Gallant, M.D.  
Kenneth R. Kaplan, M.D.  
Jonathan M. Shapiro, M.D.

**RADIOLOGY FELLOWS**

**CARDIOVASCULAR/  
INTERVENTIONAL**

David J. Eschelman, M.D.  
David M. Hovsepian, M.D.

**ULTRASOUND/CT/MRI**

Mark O. Cosentino, M.D.  
Jay E. Lerman, M.D.  
Charles D. Levine, M.D.  
Levon N. Nazarian, M.D.  
Mary O'Boyle, M.D.  
Robert Pinsk, M.D.  
Deborah A. Rubin, M.D.

**BREAST IMAGING**

Gail R. Eliot, M.D.

**NEURORADIOLOGY/ENT**

Ricardo Eng, M.D.  
Scott Faro, M.D.  
Van Thong Ho, M.D.  
Marina D. Liem, M.D.  
Andrew H. Shaer, M.D.

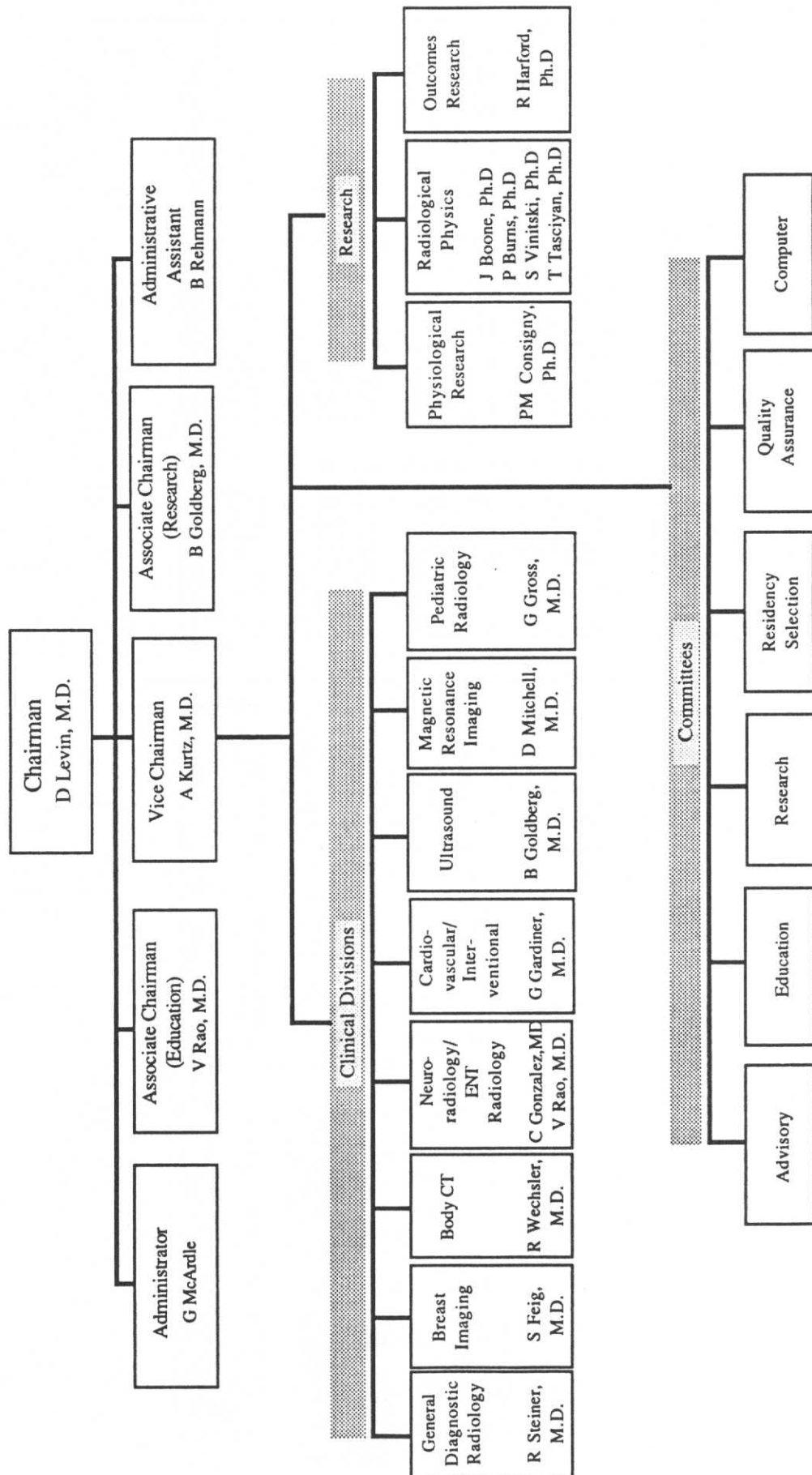
**MRI**

Raphael Caccese, Jr., M.D.

**MUSCULOSKELETAL**

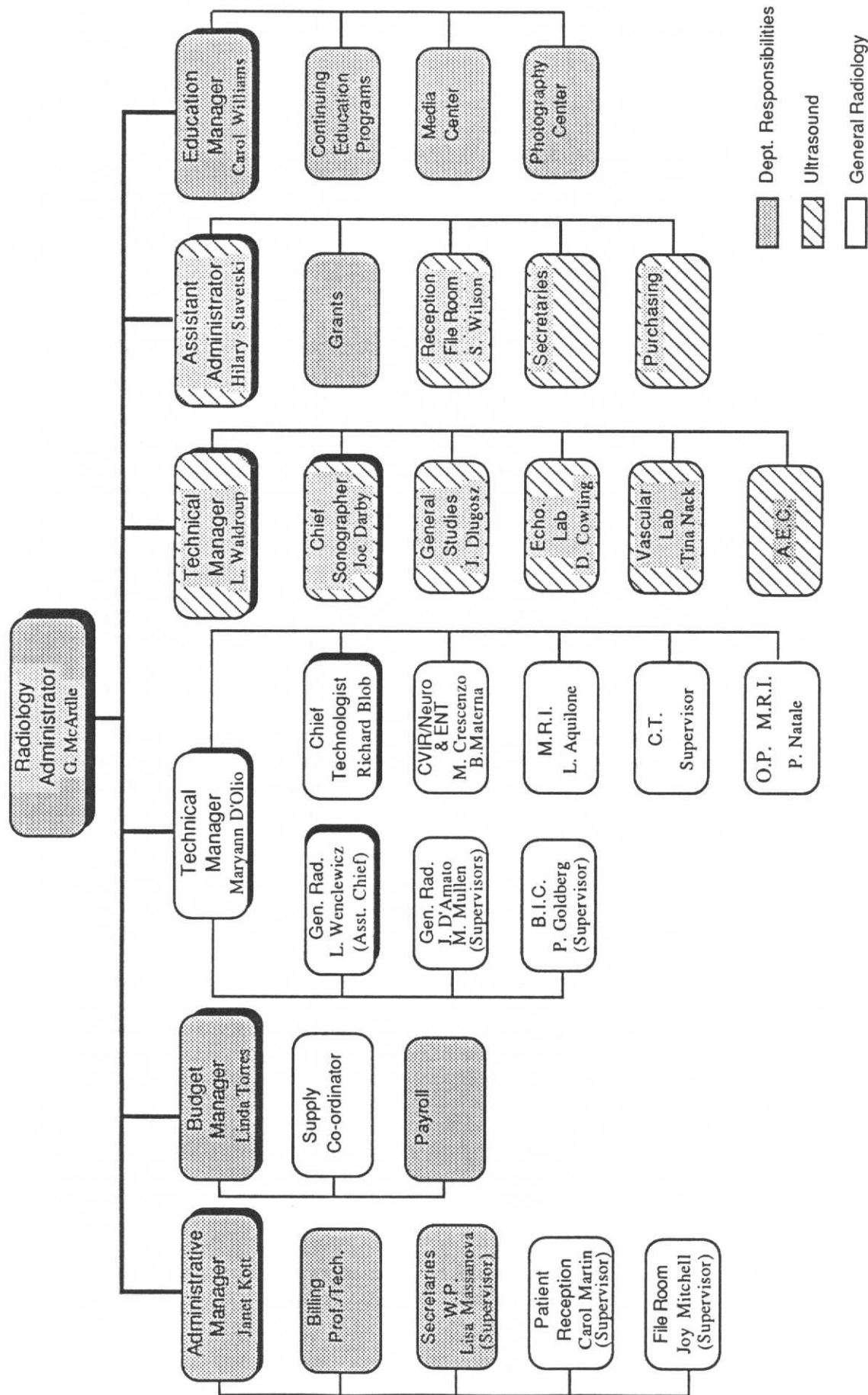
Diane M. Deely, M.D.

# Department of Radiology





Department of Radiology



## CHAIRMAN'S REPORT ON THE STATE OF THE DEPARTMENT

1990-91 was another good year for the Department of Radiology and I am pleased to be able to report on some of our progress in research and clinical care, as well as our future plans in these areas. As we have done in the past, a separate report on educational programs can be found immediately following this one, written by Vijay Rao, M.D., Associate Chairman for Education. The sections below will discuss the following: (1) overview of clinical activities, (2) clinical services, new programs and facilities, (3) research accomplishments, (4) future research plans, (5) future plans in clinical services, (6) other goals, (7) problems and weaknesses, (8) issues for the college, (9) brief 5-year summary progress report.

### 1. OVERVIEW OF CLINICAL ACTIVITIES

Our most important development during the past year has been the opening of the Clinical Office Building (COB), which has provided us the opportunity to expand our outpatient activities in MRI and ultrasound. The COB is an attractive and well-designed building which houses two MRI units and six ultrasound rooms. The MRI units are in operation from 7:30 a.m. - 11:00 p.m. weekdays and one of them operates all day Saturdays. We are now at a healthy "steady state" in terms of MRI scheduling, in that there is about a one week backlog for daytime slots, but urgent cases can be accommodated almost immediately. We are now able to perform over 180 MRI exams per week, and it is a great source of satisfaction to all of us to be able to serve the needs of patients and referring physicians so promptly after not having had this capability in the past. The new ultrasound facility in the COB is now scheduling four rooms daily, five days per week, and procedure volume there averages close to 40 studies per day. We have the capacity to schedule the two additional rooms as procedure volume grows over the next several years, and space is available to add a seventh examining room when this becomes necessary.

In the Breast Imaging Center, a sixth mammography room has been added to serve the ever-growing demand for breast imaging studies. The ultrasound division on Thompson/Main-7 and Main-8 has undergone considerable reorganization, particularly involving the physical locations of the Antenatal Evaluation Center (AEC), the echocardiography laboratories, and the vascular ultrasound/non-invasive laboratories. These changes will, among other things, allow our staff to provide closer and more consistent supervision of studies being carried out in the vascular ultrasound lab. Our body CT unit on Gibbon-3 has been upgraded by installation of the HTD package which provides solid state detectors, better image quality, and slightly faster patient throughput.

For the department as a whole, there was a 5% growth in procedure volume. Our outpatient volume increase was greater than it was for inpatients (5.7% vs 4.5%). While this overall growth rate is a bit slower than it has been during the past two years, it still reflects a healthy trend, particularly at a time when increasing efforts are being made throughout the country to limit the numbers of diagnostic procedures being carried out on patients. Most other chairmen of academic radiology departments with whom I have discussed this have indicated they are experiencing either no growth or even slight downturns recently. The areas in which we have undergone the most rapid growth during the past year (in addition to MRI) have been vascular ultrasound, breast imaging, echocardiography, pediatric imaging studies, bone radiography, and body CT. Our total procedure volume was approximately 208,000 exams - the first time we have broken the 200,000 mark.

Quality assurance is becoming an increasingly important issue for all departments. We spent a considerable amount of time and effort in developing a satisfactory QA program. Dr. Paul

Spirn has led this effort, which has resulted in a program that not only meets the requirements but is also meaningful in terms of daily operations.

In this report last year, I discussed the question of a policy for use of low osmolar contrast agents (LOCAs). Facing a potentially massive increase in costs to the hospital, our department developed guidelines restricting use of LOCAs in low-risk patients while providing them to high-risk patients. This was the first full year of use of the guidelines after several early revisions. They have worked well, and we are currently collecting data on all cases in which intravenous contrast agents are administered. Our current rate of LOCA use under these guidelines has been approximately 26%.

## **2. CLINICAL SERVICES, NEW PROGRAMS, NEW FACILITIES (By Division)**

**A. GENERAL DIAGNOSTIC RADIOLOGY:** A new polytomography unit was installed in Core 1, replacing the very old unit in Core 4. The Franklin head unit was relocated from Core 4 to the western end of Gibbon-3. The removal of all x-ray equipment from Core 4 enabled us to build a beautiful new departmental library and to add some much-needed office space for faculty. A new "trauma board" was added, although this has not yet begun to work as smoothly as anticipated. A telephone feature called DEC TALK was added in the division, allowing referring physicians and nursing stations to call in and obtain a computer-synthesized voice report telling them where a particular patient's film jacket is located, and also what time a patient who comes to Gibbon-3 for radiographic studies is expected to return to the nursing unit. This innovative system will probably be added in other areas of the department in the future. We installed a radiographic unit in the Preadmission Testing Center, another radiographic unit in the emergency department, and two new C-arm fluoroscopy units in the ORs. We successfully integrated our outpatient registration process into the hospital's CORE system. In the personnel area, a second technical assistant was added in the main reading room to help maintain the flow of films, call x-ray reports and service referring physicians in this very congested area. We increased the number of transcriptionists in the Word Processing Center, which has enabled us to speed up the turnaround time of radiology reports. As a result of George McArdle's proactive approach to recruitment and retention of radiologic and ultrasound technologists, we have been able to maintain a satisfactory level of staffing despite a nationwide technologist shortage.

**B. PEDIATRIC RADIOLOGY:** Procedure volume growth in pediatric radiology was once again strong. The number of pediatric imaging studies increased by almost 14%, following a 20% increase the previous year. Dr. George Gross continued to expand his excellent services to patients at the Children's Rehabilitation Hospital. He also continued his discussions with the pediatric radiologists at the A.I. DuPont Institute, with the goal of a close association between our two departments in the future.

**C. BREAST IMAGING:** A new mammography room (our sixth) opened in the Breast Imaging Center (BIC). In addition to the new mammography machine in that room, Dr. Feig was also able to negotiate (at very favorable terms for the hospital) the replacement of an old mammography unit in another room. The BIC group decided to change the workflow and technologists' staffing patterns, and this seems to have worked out very well. Patients are moved through the BIC faster, and both radiologists and technologists are able to work more efficiently.

**D. CARDIOVASCULAR/INTERVENTIONAL RADIOLOGY (CVIR):** Several new procedures were introduced. These include the percutaneous placement of inferior vena cava filters via the internal and external jugular approaches, the use of the Wallstent (a self-expanding vascular stent developed in Europe) for biliary tract obstruction, and transjugular intrahepatic portosystemic shunts. The CVIR group continued to provide other recently-developed procedures



such as fallopian tube recanalization and stent placements for venous stenoses in dialysis patients. It also continued to be one of the leading centers in using the Palmaz arterial stent. Computer software was acquired for improving inventory control. New equipment was also obtained for measuring translesional pressure gradients in blood vessels, monitoring anticoagulant status, and DSA roadmapping.

**E. NEURORADIOLOGY/ENT RADIOLOGY:** The Neuro/ENT division was kept very busy with the opening of the two new MRI units in the COB, and continued procedure volume growth at our off-campus MRI facility in Langhorne. It was also gratifying to begin receiving more orbital MRI referrals from several of the ophthalmologists at the Wills Eye Hospital. A very exciting new innovation was the installation of prototype software for magnetic resonance angiography (MRA). So far this has been used primarily for noninvasively imaging neck and cerebral blood vessels. We will be further upgrading this technology in the near future. MRA has intrigued investigators for years and has now advanced to the point where it has become a clinical reality. New fat-suppression sequences were also instituted for MRI studies of the orbits and sella.

**F. DIAGNOSTIC ULTRASOUND:** The ultrasound division planned and executed several important moves this past year. A new outpatient ultrasound facility was opened on the ground floor of the COB. This will provide efficient and rapid scheduling of outpatients in a pleasant setting removed from a hospital atmosphere. The transition was managed with remarkable efficiency by Drs. Goldberg, Needleman, their colleagues and Larry Waldroup. As indicated earlier, a large proportion of our outpatient referrals is already being seen there and it provides us with a capability for considerable future expansion. The division also realigned its units on Main/Thompson-7 and Main-8. Echocardiography was moved up to Main-8. The AEC was moved from Thompson-7 to Main-7. The vascular lab was moved from Main-8 to Thompson-7. Vascular US was the most rapidly growing area of the department, with no less than a 62% increase in volume this past year. Much of it was due to the greatly increased utilization of venous ultrasound for suspected DVT. Division faculty members have begun performing some very innovative new endoluminal US studies of the esophagus, stomach, and duodenum. Stress echocardiography and transesophageal echocardiography have also been added. Three new offices were built to accommodate US division faculty members and the Word Processing Center on Main-7 was renovated. We continued to expand our reputation as a leading center for endorectal and endovaginal ultrasound studies.

**G. BODY CT:** As indicated earlier, new hardware and software additions to our GE 9800 CT scanner on Gibbon-3 have improved image quality and patient throughput. Demand for body CT services is increasing significantly and additional scanning slots for body CT were added to the schedule during evenings and weekends. The body CT reading room was enlarged and a technical assistant was added as a "physician-extender". She helps expedite the movement of films and reports and in managing the heavy flow of telephone communications.

**H. MRI:** Dr. Matthew Rifkin and his divisional colleagues were heavily involved in the planning and development of the MRI units in the COB and TME. There continues to be good collaboration between faculty radiologists and our MRI physicists, Drs. Simon Vinitzki and Talin Tasciyan. The collaboration has been highly productive in research, and this has carried over into the early clinical introduction of techniques like variable angle "snapshot" imaging, chemical shift MRI, 3-D fat suppressed gradient echo MRI, etc. This is a good example of clinical applications of technology following closely upon the heels of research, both of them occurring in our department. With four MRI units in operation, Jefferson's Department of Radiology has one of the most active MRI groups of any academic department in the country. Since these four magnets are dispersed in three different locations, this keeps our faculty on the run.

### 3. RESEARCH ACCOMPLISHMENTS

Outside funding increased during the past year. In the course of 1990-91, radiology faculty investigators had funded research in force totaling \$917,000 (direct plus indirect). Over the full life of these grants or contracts, they represent more than \$3,201,000 in support from NIH, national scientific organizations or foundations. The principal investigators on these projects were Drs. John Boone, Macke Consigny, Barry Goldberg, Mark Mishkin, Larry Needleman, Matthew Rifkin, Talin Tasciyan, and Simon Vinitzki. Titles of the projects and further details can be found in Appendix A. In addition, considerable funding was obtained from industrial sources. This amount totaled another \$373,100.

At the 1990 RSNA meeting, Jefferson radiologists made 30 presentations, of which 22 were scientific research papers and 8 were special focus sessions or refresher courses. Not many other departments in the country have been able to match this level of productivity.

Numerous other interesting projects, most funded through departmental sources, have been ongoing during 1990-91. Studies have been continuing of certain pulmonary diseases like mycobacterium avium intracellulare pneumonia and bronchiolar alveolar cell carcinoma, foot disorders like hallux valgus and subtalar joint disease, and genitourinary tract disorders like uterine fibroids and fallopian tube occlusions. In pediatric radiology, Dr. Gross pursued the application of neural networks to the analysis of neonatal chest conditions and fractures of the radius. Further studies on imaging in ECMO patients were also carried out. A new multicenter registry of peripheral vascular interventional procedures was organized by Dr. Gardiner in the CVIR division. The registry is the first of its kind to be established, and has already entered the largest number of such cases to ever be incorporated in a single trial. Another project in this division dealt with the efficacy of infrainguinal graft thrombolysis. Some interesting studies were carried out in the neuroradiology/ENT division to investigate the hemodynamics of experimental cerebral aneurysms. A laboratory model of these lesions has been developed in conjunction with the department of neurosurgery. Another project correlated the MRI characteristics of structural brain lesions with emotional and cognitive abnormalities in multiple sclerosis. We continued to be part of a blinded clinical trial of the use of steroid pretreatment prior to administration of I.V. low osmolar contrast agents. In the ultrasound division, investigators studied the detection by ultrasound of skeletal dysplasias in utero and the use of endoluminal ultrasound in abnormalities of the esophagus, stomach, and duodenum. In the MRI division, studies were carried out of hepatic iron overload, MRI of wrist and shoulder abnormalities, staging of prostate carcinoma, and the use of new contrast agents in MRI of the liver.

Our basic scientists continue to be very active in a variety of areas. Dr. Simon Vinitzki worked at developing new pulse sequences in MRI. These included variable angle "snapshot" MRI, fast 3-D chemical shift MR imaging, combined inversion recovery gradient and spin echo imaging, 3-D tissue segmentation using artificial intelligence, and others. He also continued his work in developing ways to study the natural history of atherosclerotic plaque by chemical shift MR imaging and spectroscopy. Dr. Macke Consigny attempted to characterize arterial growth factors released after percutaneous transluminal angioplasty, and worked with Dr. Vinitzki on MRI of experimental pulmonary emboli. Dr. John Boone continued his work on neural networks and began his funded project on equalization of digital subtraction angiographic images using a filter wheel of his own design. Dr. Talin Tasciyan also worked on new display techniques in MRI and began her Whitaker grant in magnetic resonance angiography.

With the support and encouragement of Dean Gonnella, we have begun to develop a program in outcomes research and technology assessment research as they pertain to imaging. After an extensive search, we recruited Robert Harford, Ph.D. to become a faculty member in the department and organize the program. We have already begun studies of the impact of practice

guidelines on the use of low osmolar contrast agents, assessment of the quality of MRI exams and interpretations from all MRI providers in the Delaware Valley, relative costs of imaging studies provided by radiologists and non-radiologists, and trends in the utilization of certain diagnostic tests. The last three of these projects are being done through a collaboration with Pennsylvania Blue Shield. I anticipate that health services research will become of increasing importance in the future, and am pleased that we are one of the few radiology departments in the country to be actively involved in this endeavor.

#### 4. FUTURE RESEARCH PLANS

We are committed to remaining at the forefront of radiology research. Several investigators have recently received word of approval of outside grant support. Dr. Simon Vinitzki's proposal for a project on MR imaging of pulmonary emboli was approved by the Mary L. Smith Charitable Lead Trust. Dr. Macke Consigny was approved for funding of a project on re-endothelialization of arteries after balloon angioplasty by the American Heart Association Delaware Affiliate. Dr. Gardiner and I have been able to obtain industrial support for his peripheral arterial revascularization registry. Dr. Adam Flanders has submitted a grant proposal to the NIH as part of a head and spinal cord injury clinical research center, in conjunction with the department of rehabilitation medicine. Dr. Consigny has submitted a proposal to the American Heart Association to study arterial factors affecting restenosis after balloon angioplasty. Drs. Vinitzki and Consigny have submitted another proposal to the American Heart Association on further use of MRI to characterize atherosclerotic plaques. Dr. Carlos Gonzalez and several other investigators have submitted an NIH grant to study the hemodynamics of brain aneurysms using computer angiographic simulation. Most of the funded projects listed in Appendix A are ongoing and obviously they also represent a major component of our future research plans.

In addition to these projects, a large number of other worthwhile clinical and experimental research studies by various faculty members are either under way or in the planning stages. Most are funded by departmental resources. In the musculoskeletal area, several radiologists are studying wrist injuries, postoperative findings in the rheumatoid foot, mechanisms of spinal cord injury, and the use of polytomography after anterior spinal decompression. The outcomes research projects referred to in the previous section are ongoing and others are planned. In the breast imaging division, studies will be carried out of patterns of microcalcifications in malignant and benign breast disease, parameters for predicting malignancy in circumscribed breast masses, and mammographic-pathologic correlations in patients with mucinous breast carcinoma. The CVIR group will study the hemodynamics of dialysis graft stenoses and the use of stents to try to reopen these lesions. Experimental studies will compare properties of balloon-expandable and self-expanding arterial stents. A prospective study will be carried out comparing the use of the "birds nest" and Greenfield inferior vena cava filters after percutaneous placement. The division will also be participating in the phase I clinical trials of the Strecker stent, a new vascular stent designed and initially tried in Europe. In neuroradiology, blood flow patterns in carotid arteries will be assessed using computer modeling to attempt to predict anatomic factors which could influence the development of carotid atherosclerosis. In conjunction with the department of neurology, a study of the MRI findings in organic dementias will be carried out. A number of interesting projects are underway in the ultrasound division. These include Doppler flow studies of breast tumors, color Doppler assessment of prostate and rectal wall lesions, 3-D US, computerized analysis of tissue attenuation of US beams, the development of US contrast agents, and comparison of abdominal vs endovaginal scanning in identifying the yolk sac during the first trimester of pregnancy. The CT division will continue its studies of findings related to liver transplant rejection and is also prospectively evaluating the role of CT in abdominal and pelvic



trauma. In MRI, we will focus upon further development of contrast agents for MRI, MR angiography, and development of "turbo" and other fast imaging techniques.

## 5. FUTURE PLANS IN CLINICAL SERVICES

A number of important new elements are to be added this year. Perhaps the broadest in scope is the digital dictation system, which will allow referring physicians to call in by phone and obtain a preliminary verbal report on any patient study as soon it has been dictated. It will also allow us to redirect the flow of work to transcriptionists more efficiently, thereby shortening report turnaround time.

On Gibbon-3, a new musculoskeletal reading room will be constructed in Core 2. We anticipate that this will allow us to keep better track of the orthopedic and trauma cases and to make it easier for those services to have access to their films. It will also reduce congestion in the main reading room, which will become primarily a thoracic radiology and intensive care unit reading room. We will be working with the department of orthopedic surgery to plan a radiographic facility in their new offices in Walnut Towers. We will also be opening up new radiographic rooms in the gastroenterology endoscopy suite on Main-4 and a urology procedure suite on Thompson-5.

In CVIR, discussions continue with vascular surgery and vascular medicine regarding the organization of a vascular disease center. Although progress has been slow, we hope to see that goal realized within the next year. It will not result in a change of physical plant, but rather in how vascular disease patients are followed clinically and administratively. The CVIR group will continue to expand its use of new interventional procedures - such as percutaneous venous access catheter insertions, chemoembolization of metastatic liver disease, transjugular intrahepatic portosystemic shunts, arterial stenting, fallopian tube recanalization, inferior vena cava filter placement, biliary tract stenting, percutaneous treatment of dialysis graft stenoses, etc.

Software and hardware upgrades to our CT scanners will be made. In the body CT suite on Gibbon-3, the GE "Advantage" package will be added with its new compact computer, as will an independent physician's console. These will allow better multi-tasking of operations, faster patient throughput, and better monitoring of procedures by physicians in the body CT division while the studies are actually going on. The GE 9800 CT scanner on Main-10 will have the HTD hardware and software package added (this same addition was recently made to the scanner on Gibbon-3). Laser imagers will be added on both Gibbon-3 and Main-10. The latter imager will also service the MRI scanner on Main-10. Laser imagers are now considered state-of-the-art and will improve quality of the final hard copy images on both floors. Dr. Vijay Rao has recently begun performing CT scans of dental patients prior to implants, and we may expand this by acquiring the necessary software sometime during the coming year. We will continue to review possible options for 3-D CT. There is some question as to the clinical utility of this type of imaging but we remain interested in exploring the possibility.

In the ultrasound division, we hope to institute patient tracking soon. This plan was delayed during the past year because of other priorities of our radiology computer facility. In MRI, two new MR angiography hardware/software packages will be installed, one on Main-10 and the other on one of the two units in the COB. We will also be obtaining an independent physician's console for MRI; we expect this to facilitate image processing and image transmission between the COB and Main-10. New MRI techniques will be added or expanded as a result of previous research collaboration between Dr. Vinitski and the radiologists in the MRI and neuro/ENT divisions. These include ultrashort spin echo MRI (particularly of the upper abdomen and head and neck) and turboflash imaging.

## 6. OTHER GOALS

Some of our broader and more general goals in the clinical sphere are as follows:

- **Practice expansion:** We will continue striving to enlarge our practice. In most divisions, we have sufficient space to accomplish this. Growth can clearly occur in the MRI and ultrasound facilities in the COB. Our off-campus MRI unit in Langhorne also has capacity for additional volume. We will look into the problem of dealing with increasing demands for mammography screening, although meeting this demand is not going to be easy. We will work cooperatively with the departments of surgery and medicine to try and develop a vascular disease center in the hopes of increasing referrals for vascular interventional procedures. We are continuing our efforts to secure the radiology contract at the Wills Eye Hospital.
- **Competing aggressively:** A corollary to practice expansion is the need to compete effectively with other radiology groups in center city Philadelphia, some of which have begun very aggressive marketing campaigns. One of the problems we face is that these competing groups have no research or teaching responsibilities; they are set up to churn out a high clinical case load and maximize their revenues. We on the other hand have major research and educational programs which demand time and dedication on the part of our faculty. For the most part, I'm confident we are meeting our service responsibilities satisfactorily; nevertheless one of our goals remains to successfully compete with these outside groups through consistent attention to the needs of referring physicians and effective marketing.
- **Cost reduction:** In this era of reduced reimbursements to hospitals, one of our long term goals is the reduction of operating costs. An example of how we have tried to do this so far has been to carefully monitor the use of low osmolar contrast agents and to restrict them only to patients with specific clinical indications. In the future, we will closely assess service contracts and other hospital expenses pertaining to radiology.
- **Image transmission:** A final goal is to develop capability for image transmission from one site to another. This is becoming a matter of some importance as our department grows and we become even more dispersed. The two things holding back the achievement of this goal are the slow development of image transmission technology and the high costs involved. The technology is evolving, however, and we will keep a careful eye on this evolution.

In the educational sphere, our primary goal is to strengthen our teaching of medical students, residents and fellows. Our programs are already quite strong, and they have been immeasurably improved by the building of the new radiology library. We will keep working to make our training programs the best they can possibly be.

In the research sphere, some of our important goals are as follows:

- **Grant support:** We will continue our efforts to increase levels of federal and industrial grant support, especially among our basic scientists. Our level of funding has improved and we wish to see this momentum continue.
- **Outcomes research:** In addition to basic science and clinical research, we have now begun a program in outcomes research. Some of the projects now underway have been alluded to earlier. This area will clearly be a major thrust of medical research in the future and I would like to see our department take a lead in its application to the field of radiology.
- **Research affiliations:** During the past several years, Jefferson has developed close alliances with several major institutions - particularly the A.I. duPont Institute, the Medical Center of

Delaware and Geisinger Medical Center. I have had discussions with the radiology chairmen at these three institutions and hope to cement closer collaboration with them in carrying out clinical research. Large databases are often the key to good radiology research and obviously the available pool of research material will increase if these relationships can be fostered.

## 7. PROBLEMS, WEAKNESSES

Nobody like to acknowledge weaknesses, but there are several we need to deal with:

- One of the measures of efficiency of a department of radiology is the speed with which it generates reports following performance of examinations. Our report turnaround time is longer than it should be and we have had continuing problems trying to shorten it. We expect that the installation of our digital dictation system will help, but we have to attack this problem on other fronts as well.
- Our radiology film library on the Gibbon-3 is growing critically short of space. At the present time, we are able to store only about four months' worth of films. George McArdle and Joy Mitchell are working hard to try and improve film library efficiency, but the shortage of space is a limiting factor. This problem is directly related to the issue of report turnaround time mentioned above. In many cases, old films aren't readily available to the radiologist who has to read current films, and this means interpretations must be delayed until they do become available. Solving this problem will not be easy due to lack of available space in the hospital.
- Space and equipment are adequate for our needs in most areas, with two exceptions. The Technicare HPS 1440 CT scanner on Main 10 is outdated and needs replacement. The COB includes room for a CT scanner, and I am hopeful that we will be able to obtain hospital approval for a new CT unit within the next year. Having all three cross-sectional imaging modalities (CT, US, MRI) together in the COB will be a great advantage in efforts to build our outpatient imaging practice. Also, the CVIR division is close to outgrowing its space as a result of rapid growth in volume and complexity of interventional procedures during the past few years.
- Without departments of physics, mathematics and engineering immediately here on campus, research and education are more difficult in a field like radiology. We would like to strengthen our ties with Drexel University, which have already been in existence for some years. We have had some very fine graduate students from Drexel working here in the department with our basic scientists. This relationship needs to be expanded. A possible alternative would be to develop a graduate program in medical physics here at Jefferson.
- A final problem is that of laboratory space for our basic scientists. In particular, Dr. Consigny has been utilizing space in the department of physiology for the last several years for his *in vitro* research, but there is some question as to the future availability of that space. Our basic science research is progressing well, but the problem of permanent laboratory space for researchers like him needs to be solved.

## 8. ISSUES FOR THE COLLEGE

There are a number of important issues facing the medical school and the faculty practice plan.

- Perhaps the most important is to maintain excellence in research and teaching despite the limitation in physician reimbursement which has recently been announced in the Medicare

proposed rules. The practice of medicine is going to continue to become increasingly competitive. TJUH has a well-deserved reputation as the best provider of patient care in the entire area and the competition is already trying to chip away at us. This is sure to intensify as reimbursements become even more restricted. We have to compete vigorously, by not only keeping our standards of practice at the highest levels, but also by marketing our skills and reputation actively. Continued success of Jefferson's clinical practice will, to a large extent, fuel success in research and teaching.

- Managed care is another broad issue. Here again, we have much to offer the many managed care plans now being developed in the Delaware Valley. Deciding which of these plans to affiliate with and how deeply to get involved is a very complex decision affecting many departments in the medical school. We have to be receptive to this still-evolving approach to providing health care, but we also have to be careful in deciding how much financial risk we are willing to accept in capitated plans.
- Jefferson Park Hospital is now a full subsidiary of Thomas Jefferson University. The merger of two hospitals is always a challenge, and this one will be also. Difficult decisions lie ahead about the degree to which Jefferson Park practices will be merged with TJUH practices, as well as how to integrate the administrative functions of the departments involved.
- A final issue (hopefully a non-issue) is the relationship between the basic science and clinical departments. The university has undertaken a massive expansion in the basic sciences during the past year. This would seem to have been a correct decision and all of us at Jefferson can take pride in this development. Hopefully the activities of the clinical and basic science departments can be integrated, so that all parties can work together collaboratively with benefit to everyone. The hospital clinical departments will continue to need the same kind of strong support that has recently been given to the basic science departments, particularly in the era of reduced reimbursements for medical care.

## **9. FIVE YEAR PROGRESS REPORT**

After five years here at Jefferson as chairman of the department of radiology, this is perhaps an appropriate time for me to look back and reflect on what has been accomplished. For one thing, our physical plant has been transformed remarkably. When I came here in the middle of 1986, the ultrasound division had just been completely rebuilt after extensive planning by Dr. Barry Goldberg and others. Soon thereafter, we were able to completely re-equip neuroradiology and centralize it on Main-10. The GE 1.5T MRI unit was then installed, after we engineered a quick swap of this unit for the one which had been ordered in 1985 from the soon-to-be-defunct Technicare Corp. A new CT scanner was installed on Main-10 as part of the neuroradiology renovation, and a new body CT area with another dedicated scanner was opened on Gibbon-3. A large new breast imaging center was built in the Medical Office Building. The CVIR area on Gibbon-5 was completely renovated and new equipment was installed. In the general diagnostic division, new fluoroscopy and polytomography units have replaced much older equipment. More recently, the COB has opened with two more MRI units and six ultrasound rooms. Research laboratories have been developed for basic research in the physics of magnetic resonance, radiographic imaging and ultrasound. An experimental procedure room and a vascular physiology lab have also been added. Finally, a new library has just been completed.

Aside from these considerations of space and equipment, our clinical procedure volume has increased by 58% since 1985-86. We have become a leading academic center in radiology research. Our research activities span both the clinical and basic sciences and will soon

encompass health services research as well. Our teaching programs have expanded and grown in reputation among medical students, residents, fellows, and practicing physicians

None of this could have been accomplished without support from a variety of sources around the Jefferson campus. I am especially grateful to George McArdle for his dedication and expertise, to say nothing of the education he has given me in the complexities of running a very large operation like ours. Thomas J. Lewis, III, Bart Murtaugh and many others in the hospital administration have been supportive of the department's goals and needs, as have Dean Joseph Gonnella and Senior Associate Dean Robert Blacklow at the medical school. Presidents Bluemle and Brucker and our Board of Trustees have provided excellent institutional leadership. Finally, and most importantly, the faculty of the department of radiology is one of the most superb teams I have ever been associated with. Working with them has been the most interesting and enjoyable aspect of my tenure here.

A handwritten signature in cursive script, reading "David C. Levin". The signature is written in dark ink and is positioned above a horizontal dashed line.

David C. Levin, M.D.



## **TEACHING PROGRAMS**

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

### **INTRODUCTION**

The education of medical students, residents and fellows remains a high priority for our faculty in spite of the mounting pressures in academic radiology to increase clinical workload and research productivity. One of the major strengths of our department lies in the well-designed and viable teaching programs at all levels of graduate education. Our residency is recognized nationally as one of the best training programs. We are currently competing successfully with other top programs in the country for the best residency applicants. Our profile in the fellowship arena is also increasing as evident by the caliber of fellowship applicants. The medical students continue to enjoy their educational experience in the Department of Radiology during their elective courses. The reputation of our educational programs has spread as far as Europe and Asia. There is an ever-increasing number of requests from medical students, and from visiting fellows and professors to spend time in our department. A major addition to our physical facilities this year was the construction of a new radiology library which is spacious, comfortable and now fully equipped with up-to-date reference books, journals and film teaching files. The library is used extensively by students, residents, fellows and staff members.

The **Fourth Annual Hodes Lecture** in honor of Philip J. Hodes, M.D. was a great success. The invited speaker, Ronald Evens, M.D., Professor and Chairman of the Department of Radiology, Washington University Medical Center and Director of the Mallinckrodt Institute of Radiology, gave an outstanding presentation on "The Federalization of Radiology -- Technology Assessment and Fee Schedules". The lecture was followed by a gala reception.

### **A. RESIDENCY PROGRAM**

The primary goal of our residency program is to produce radiologists who are well trained in all aspects of diagnostic imaging so that they will feel comfortable in either an academic setting or a private practice environment. Each of our three graduating residents passed the written and oral portions of the American Board of Radiology examination. Our residency program has set a record that is hard to beat. Program performance average in the written part of the examination was ranked in the 99th percentile for Diagnostic Radiology and 92nd percentile for Physics. Two of our graduating residents have chosen to remain with us in order to pursue fellowship training in Cross-Sectional Imaging, while one resident has joined the faculty at Paoli Memorial Hospital.

**Resident Selection:** This year we received 286 applications for five positions and interviewed 50 applicants. We filled our five positions from the top 18 choices in the National Interns and Residents Match Program (NIRMP). The five candidates who will begin residency in July 1992 include three from the University of Pennsylvania Medical School, one from Emory University, and one from the Jefferson Medical College.

**Clinical Training:** Our residency program is designed to encourage subspecialization among radiology trainees. The core curriculum is completed in three years, during which all residents rotate through each of the following areas: thoracic radiology, skeletal radiology, genitourinary radiology, gastrointestinal radiology, body computed tomography, cardiovascular/interventional radiology, neuroradiology/ENT radiology, mammography, ultrasound, pediatric radiology, magnetic resonance imaging and nuclear medicine. In the fourth year, the residents have the



option of taking elective rotations in one or several of these areas. However, one six-month block in any of the subspecialty areas is mandatory.

**Resident Research:** As an academic facility, research is strongly encouraged. Third-year residents are required to work on at least one project. A research award was instituted this year to be presented annually to a resident with the best research publication. Evan S. Siegelman, M.D., a second year resident, won the award for his work in MR imaging of parenchymal versus reticuloendothelial iron overload in the liver, recently published in *Radiology*.

**Excellence in Teaching Award:** The teaching efforts of our faculty are recognized and rewarded. The A. Edward O'Hara award is given each year by the residents to a faculty member for excellence in teaching. This year Alfred B. Kurtz, M.D. was the recipient.

## **B. TRAINING PROGRAMS FOR FELLOWS**

Our fellowship programs are much sought after because of the state of the art equipment, excellent teaching staff consisting of radiologists and physicists, and research opportunities. In addition to the ever-popular fellowships in Cardiovascular/Interventional Radiology, Neuroradiology/ENT Radiology, Ultrasound/CT/MRI, we also offer fellowship training with full emphasis on US, body MRI, musculoskeletal radiology, thoracic radiology and breast imaging. Another new program offered by our department is a two-year Neuroradiology/ENT fellowship in collaboration with Children's Hospital of Philadelphia (CHOP). This is a unique program which allows a fellow to receive training in adult neuroradiology/ENT for one year at our institution, followed by training in pediatric neuroradiology at CHOP during the second year.

**Cardiovascular/Interventional Fellowships:** The Cardiovascular/Interventional division offers the option of a one- or two-year fellowship. Under the direction of Geoffrey A. Gardiner, M.D., the two-year program allows one month in the non-invasive vascular lab, 15 months in the clinical vascular/interventional service, and 8 months in the research laboratory. Daily ward rounds and morning work conferences are held, during which time all cases are reviewed and patient management decisions are made.

**Neuroradiology/ENT Fellowship:** The Neuroradiology/ENT fellowship is under the direction of Carlos F. Gonzalez, M.D. It consists of a two-year program with two fellows appointed each year for a total of four fellows. In addition, under the new combined program with CHOP, a fifth fellow spends one year in our department. The Neuroradiology/ENT fellowship, inclusive of the two-year program here and the combined programs with CHOP, was recently accredited by the American Council of Graduate Medical Education (ACGME) for a period of three years. The Cardiovascular/Interventional division is in the process of applying for accreditation of its fellowship by the ACGME.

**Ultrasound/CT/MRI Fellowship:** This fellowship is under the direction of Barry Goldberg, M.D. The fellowship was expanded to 14 months, including 7 months in ultrasound, and 3 months each in CT and body MRI. The ultrasound portion of this program offers training in adult and pediatric abdomen and pelvis, neonatal brain, obstetrics and gynecology, small parts (including testes, neck and breast), peripheral vascular, echocardiography, endosonography, intra-operative ultrasound, and aspiration-biopsy and abscess drainage techniques. In body CT, training is given in chest, abdomen and extremities. Aspiration-biopsy and abscess drainage techniques are also taught during the body CT rotation. MRI training consists of all aspects of body and extremity studies, including the physics involved with image production.

### C. TEACHING PROGRAMS FOR MEDICAL STUDENTS

***Freshmen Medical Students:*** The Radiological Anatomy course emphasizing cross-sectional anatomy by CT and MRI for first year students again included 14 hours of instruction. A radiologist was available as a consultant in the dissection laboratory for two hours per week, for five sessions. In addition, this year our department presented four one-hour lectures in radiologic anatomy to the entire freshmen class.

***Junior and Senior Students:*** The objectives of our department are to instruct students in the basic elements involved in radiology of emergency care. Principles of x-rays, fluoroscopy, computed tomography, ultrasound, nuclear medicine and magnetic resonance imaging are taught, enabling the students to better understand the factors affecting patient preparation, patient cooperation, and the sequence in which diagnostic tests should be performed. Another goal is to teach the effective use of the Radiology department and appropriate use of new technology, with emphasis on cost containment. These are achieved through five separate electives, as described below.

***General Radiology Elective RAD 401-01:*** This course was co-directed by Vijay M. Rao, M.D. and Barbara L. McComb, M.D. Although structured, the course has the flexibility of accommodating the special needs of each student. This is an extremely popular elective not only with the Jefferson students but also with students from other institutions. The RAD 401 elective was taken by 149 students either at Thomas Jefferson University Hospital or at affiliated hospitals and other institutions. The students are assigned, in small groups of 3 or 4, to different areas which include general diagnostic radiology (thoracic, skeletal, genitourinary, and gastrointestinal radiology), cardiovascular/interventional radiology, neuroradiology, body CT, ultrasound, and nuclear medicine. The students attend 2-3 hours of conferences daily. An extensive teaching file is available for review. Since the medical students do not have direct patient responsibility, evaluation of medical students during this radiology elective is not an easy task. Students enrolled in RAD 401-01 have rated this course as one of the most enjoyable learning experiences of the senior year, with many commenting that it should be a requirement for all medical students.

***Neuroradiology Elective RAD 403-01:*** This elective, which was selected this past year by two students, is supervised by Mark M. Mishkin, M.D. Students attend teaching conferences and are exposed to various neuroradiological procedures including angiograms, myelograms, computed tomography, and magnetic resonance imaging.

***Pediatric Radiology Elective RAD 405-01:*** This elective is supervised by George W. Gross, M.D. and was taken by 8 students. The students participate in plain film interpretation and observe special diagnostic procedures on pediatric patients.

***Cross-Sectional Imaging (Ultrasound, Computed Tomography, and Magnetic Resonance) Elective RAD 406-01:*** This elective is supervised by Barry B. Goldberg, M.D. and Rick I. Feld, M.D. Each medical student rotates for an interval of two weeks through ultrasound, and one week each through CT and MR. An extensive videotape library on cross-sectional imaging is available for use. This course was completed by 5 senior students.

***Cardiovascular/Interventional Radiology Elective RAD-407-01:*** This elective is supervised by Geoffrey A. Gardiner, M.D. and was chosen by 3 senior students. During the month in Cardiovascular/ Interventional Radiology, students become familiar with the wide range of interventional procedures performed by the radiologist (especially vascular, biliary, and urinary tract) through first-hand observation of cases.

***Unknown Case of the Week for Medical Students and Non-Radiology House Staff:*** Radiology residents present imaging studies accompanied by clinical information for medical students and non-radiology house staff.

#### **D. CONTINUING MEDICAL EDUCATION PROGRAMS**

Once again, numerous CME courses were offered during the year by our department. The Division of Ultrasound had another busy year and offered 40 CME courses lasting from two to five days in ultrasound applications for the abdomen, obstetrics and gynecology, noninvasive vascular diagnosis, urologic and prostate ultrasound, neonatal brain, ultrasound in surgery, physics and instrumentation, cross-sectional anatomy and echocardiography.

Our other divisions are achieving similar success in this direction. The division of CVIR successfully hosted a tutorial in vascular stents. All such courses obviously require a significant commitment of staff time and other resources to ensure their success.

***Palmez Vascular Stent Tutorial:*** The Cardiovascular/Interventional Radiology Division hosted the Palmez Vascular Stent Tutorial consisting of formal lectures and hands-on workshop which was very successful. The tutorial attracted 88 attendees from all areas of the nation, indicative of the national reputation that this division has built over such a short period of time. The course was extremely well received and was graded as excellent by its participants.

***Eleventh Annual Leading Edge in Diagnostic Ultrasound Conference:*** The Ultrasound Division's 11th Annual Leading Edge in Diagnostic Ultrasound held in Atlantic City was an outstanding success. This year's meeting featured conference tutorials on vascular ultrasound. The meeting was attended by more than 630 individuals including physicians, biomedical engineers, scientists, technologists and administrators.

***Radiology Grand Rounds:*** The grand rounds in Radiology, held bi-weekly, covered topics of interest in all the radiology subspecialties. In the 17 Grand Rounds sessions given during the year, 14 were presented by outside invited speakers and 3 by department faculty. A program of speakers and topics is included at the end of this section.

***Radiology Research Conferences:*** The bi-weekly radiology research conferences continued this year under the direction of Matthew D. Rifkin, M.D. This conference allows department faculty, residents and fellows the opportunity to present the results of their research activities. The research conference schedule is also included at the end of this section.

#### **E. FUTURE GOALS**

Our future goals will include continued updating of the educational curriculum for students, residents and fellows in order to keep pace with the advances in Radiology. Being on the cutting edge of the newer modalities, we hope to be able to offer additional continuing medical education courses. A course on statistics consisting of short presentations will be incorporated into next year's bi-weekly research conferences. The course will be given primarily by Sandra Ehrlich, M.S. and Robert Harford, Ph.D., members of our research faculty. This course will provide instruction in the appropriate use of analytic techniques in Radiology research. The general radiology elective course, RAD 401, will be reorganized to include more formal didactic lectures. Paul W. Spirn, M.D. will replace Barbara McComb, M.D. as the co-director of this course. Dr. Spirn is energetic, committed and an excellent teacher, and we look forward to significant changes in the curriculum. Increased participation by the residents in medical student teaching is anticipated. Our procedure volume and faculty are growing. We have the resources to train

additional residents and have requested approval to increase the size of the residency program from 20 to 24, phased in over the next four years.

We take great pride in the quality and diversity of our teaching programs for students, residents and fellows. Our graduates and trainees can be found in many parts of the world. We will continue to strive toward maintaining excellence in these teaching programs.

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## **RADIOLOGY GRAND ROUNDS**

<b>Larynx and Pharynx - Evaluation by CT</b>	<b>Alfred L. Weber, M.D.</b> Massachusetts Eye & Ear Infirmary Boston, Massachusetts	September 11, 1990
<b>New Developments in Urinary Diversion</b>	<b>Leonard G. Gomella, M.D.</b> Department of Urology Thomas Jefferson Univ. Hospital	September 25, 1990
<b>Fetal Congenital Anomalies</b>	<b>Alfred B. Kurtz, M.D.</b> Department of Radiology Thomas Jefferson Univ Hospital	October 9, 1990
<b>Anatomy of the Alveolar Wall: A Review for Radiologists</b>	<b>Robert E. Heitzman, Jr., M.D.</b> Department of Radiology State University of New York Syracuse, New York	October 23, 1990
<b>Approaches to Technology Assessment in a Changing Reimbursement World</b>	<b>Barbara McNeil, M.D., Ph.D.</b> Department of Health Care Policy Harvard Medical School Boston, Massachusetts	October 30, 1990
<b>Necrotizing Enterocolitis: The Experience at State University at Stony Brook and an Overview</b>	<b>Thomas Smith, M.D.</b> Department of Radiology Stony Brook Univ Hospital Stony Brook, New York	November 6, 1990
<b>An Approach to Small Bowel Radiology</b>	<b>Joel E. Lichtenstein, M.D.</b> Department of Radiology University of Cincinnati Cincinnati, Ohio	November 20, 1990
<b>Imaging of Pelvic Trauma</b>	<b>Charles S. Resnick, M.D.</b> Department of Radiology University of Maryland Baltimore, Maryland	December 4, 1990
<b>Avoidable Errors in Mammography</b>	<b>Rosalind H. Troupin, M.D.</b> Department of Radiology Hospital of the Univ of Pennsylvania Philadelphia, Pennsylvania	December 18, 1990

<b>Cardiothoracic MRI</b>	<b>Elias A. Zerhouni, M.D.</b> Department of Radiology Johns Hopkins Medical Institutions Baltimore, Maryland	January 15, 1991
<b>The Role of PET and MRI in the Diagnosis of Alzheimer's Disease</b>	<b>Mony J. DeLeon, M.D.</b> Department of Psychiatry New York University New York, New York	January 29, 1991
<b>Regional Thrombolysis Using TPA</b>	<b>Krishna Kandarpa, M.D., Ph.D.</b> Harvard Medical School Boston, Massachusetts	February 12, 1991
<b>Cardiac and Neurologic Applications of Biomagnetometry</b>	<b>William Black, Ph.D.</b> Biomagnetic Technology, Inc. San Diego, California	February 26, 1991
<b>Clinical Applications of SPECT</b>	<b>Chan Park, M.D.</b> Department of Radiation Oncology and Nuclear Medicine Thomas Jefferson Univ Hospital	March 12, 1991
<b>Color Doppler Ultrasound of Acute and Non-Acute Scrotal Disorders</b>	<b>William D. Middleton, M.D.</b> Department of Radiology Mallinckrodt Institute of Radiology St. Louis, Missouri	March 26, 1991
<b>CT of the Peritoneal Cavity, Mesentery and Omentum</b>	<b>Paul Silverman, M.D.</b> Department of Radiology Georgetown, University Hospital Washington, D.C.	April 9, 1991
<b>Occupational Issues Related to HIV Infection</b>	<b>Sheila A. Murphy, M.D.</b> Director, Infection Control Program Thomas Jefferson Univ Hospital	April 23, 1991

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## RESEARCH CONFERENCES

Sept. 18, 1990	•Early Hepatocellular Carcinoma within Siderotic Macroregenerative Nodules: The "Nodule-in-Nodule" Sign on MR Images	Donald G. Mitchell, M.D.
	•Hemochromatosis vs Transfusional Siderosis: Differentiation by MRI	Evan S. Siegelman, M.D.
Oct. 2, 1990	•Review of Research in Ultrasound	Barry B. Goldberg, M.D.
	•Review of Research in CVIR	Geoffrey A. Gardiner, M.D.
Oct. 16, 1990	•Angiographic Evaluation of the Peripheral Vascular Stent	Geoffrey A. Gardiner, M.D.
	•Superparamagnetic Ferrosomes in MR Imaging of Lung Parenchyma, Pulmonary Emboli, Liver and Heart	Simon Vinitski, Ph.D.
Nov. 13, 1990	•MR Imaging of Non-Cancerous Lesions of the Prostate Gland	Karen Lovett, M.D.
	•Preoperative Staging of Breast Carcinoma of Axillary Lymph Nodes	Richard J. Wechsler, M.D.
	•In Vitro Assessment of a Temporary Vena Cava Filter	Jeffrey R. Weissmann, M.D.
Jan. 8, 1991	•High Resolution of 2-D Multislice MR Imaging of the Wrist with Reduced Slice Thickness and Field of View	D. Lawrence Burk, M.D.
	•High Resolution Imaging of the Temporomandibular Joint	Vijay M. Rao, M.D.
	•Changing Patterns of Collateral Flow after Right Common Carotid Artery Reconstruction Following ECMO	Gia DeAngelis, M.D.
Jan. 22, 1991	•Research by Pennsylvania Blue Shield on Quality and Volume of Imaging Studies	Robert B. Edmiston, M.D.
Feb. 5, 1991	•Laparoscopic Ultrasound	Barry B. Goldberg, M.D.



	•Color Mammography: Receiver Operating Characteristics in Mammograms	John M. Boone, Ph.D.
Feb. 18, 1991	•Variable Flip Angle Chemical Shift MR Imaging Using a 4.0 Tesla Whole Body Scanner	Simon Vinitski, Ph.D.
	•Fast Scanning in the Abdomen -- Preliminary Projects	Donald G. Mitchell, M.D.
Mar. 5, 1991	•Lower Back Pain Syndrome	Jewell L. Osterholm, M.D.
April 2, 1991	•Adenoid Tissue Imaging by CT: Correlation with Age	Pam Tecce, B.A.
	•Enhanced Reabsorption of a Pneumothorax Utilizing a Mixture of Helium and Oxygen	Corinne B. Winston, M.D.
	•Hysterosalpingography and Laparoscopy in the Assessment of Tubal Occlusion Including the Effect of the Time Interval Between Studies	Stephen Karasick, M.D.
Apr. 16, 1991	•Endoluminal Biliary Ultrasound: Initial Clinical Experience	Marcelle J. Shapiro, M.D.
	•The Relationship Between Dialysis Fistula Pressure and Stenosis	Kevin L. Sullivan, M.D.
April 30, 1991	•In-Vitro Gallstone Lithotripsy with a Tunable-Dye Laser and an Ultrasonic Cavitation Wire	Michael C. Soulen, M.D.
	•Hepatic Masses with High Signal on T1-Weighted Images: Chemical Shift MRI and Histologic Correlation	Donald G. Mitchell, M.D.
May 14, 1991	•Filter Wheel Design Optimization Using Clinical DSA Images	Jonathan M. Shapiro, M.D.
	•Radial Fracture Analysis Using Neural Networks	George W. Gross, M.D.
	•Endoscopic Ultrasound of the Gastrointestinal Tract	Rick I. Feld, M.D.

## PUBLICATIONS

### Journal Articles

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212. Burns PN: Color Doppler principles (in): *Color Ultrasonography*. Rockville, MD: American Institute of Ultrasound in Medicine, 1991.
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217. Feig SA: Breast calcification, diagnostic criteria and management. *ACR Symposium on Mammography, Syllabus and Study Guide*. Reston, VA: American College of Radiology, 1991.
218. Feig SA: Screen-film mammography systems, processing and dedicated units. *Syllabus for the Categorical Course on Breast Imaging*. Reston, VA: American College of Radiology, 1991.
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## SCIENTIFIC PRESENTATIONS

### ARCHIE A. ALEXANDER, M.D.

- March, 1991 "Three Dimensional Ultrasound - A New Frontier": A Symposium, Atlanta, GA
- "Multi-plane 3D imaging of the abdomen, fetus and prostate by annular phased array"
- April, 1991 The Reading Hospital and Medical Center, Reading, PA
- "Neonatal neurosonography"
- May, 1991 Florida Society of Radiologic Technologists: State Convention and Continuing Education Seminar, Palm Beach, FL
- "Carotid ultrasound"
  - "Prostate 1991"
  - "Pediatric abdominal ultrasound"
- May, 1991 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Nonprostate endorectal ultrasound"

### JOSEPH BONN, M.D.

- October 5, 1990 Anderson Cancer Center, Department of Radiology, Houston, TX
- "Jefferson experience with the Palmaz iliac stent"
- November 2, 1990 Visiting Professor, Delaware Medical Society, Beebe Medical Center, Lewes, DE
- "Recent advances in vascular interventional radiology"
- February 17-18, 1991 16th Annual Meeting of the Society of Cardiovascular and Interventional Radiology, San Francisco, CA
- "Endoluminal biliary ultrasound: Initial clinical experience"
  - "Stents" - workshop session
- April 3-4, 1991 Visiting Professor, Wayne State University, School of Medicine, Department of Radiology, Detroit, MI
- "Vascular stents: Technology and clinical applications"
  - "Endovascular treatment of peripheral artery occlusions"
  - "Update on vena cava filters"
  - "New developments in non-vascular interventions"

**JOHN M. BOONE, Ph.D.**

September, 1990

Invited Faculty, Delaware Chapter of the American Association of Physicists in Medicine, Philadelphia, PA

- Basic Physics for Residents - Board review course

November 28-30, 1990

The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Color mammography: ROC studies using simulated mammograms"
- "Filter wheel equalization of DSA"

**D. LAWRENCE BURK Jr., M.D.**

August 18-24, 1990

Society of Magnetic Resonance in Medicine Ninth Annual Scientific Meeting and Exhibition, New York, NY

- "Optimization of scan protocols: Theoretical considerations. Practical MRI for technologists"

October 13, 1990

General Electric MR User Seminar, Philadelphia, PA

- "MRI of the wrist"

November 27, 1990

The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "High-resolution two-dimensional multisection MR imaging of the wrist with reduced section thickness and field of view"

April 14, 1991

Ninth Annual Meeting of the Society for Magnetic Resonance Imaging, Chicago, IL

- "MRI of the shoulder"
- "Musculoskeletal MRI"

June 21, 1991

Hospital of the University of Pennsylvania, Alumni Symposium on Recent Advances in MR Imaging, Philadelphia, PA

- "High resolution 2-D multislice MR imaging of the wrist with reduced slice thickness and field of view"

**PETER N. BURNS, Ph.D.**

July, 1990

American Association for Physicists in Medicine Annual Meeting, St. Louis, MO

- "Color flow imaging systems"
- "State of the art in ultrasound systems and cost-effectiveness of user QC"
- "Cardiovascular measurements, contrast agents and quality control" (session chairman)

- September, 1990 Bowman Gray School of Medicine, Winston Salem, NC
- "Doppler ultrasound"
- October 8, 1990 Body Imaging Conference, Hawaii
- "Doppler instrumentation"
  - "Obstetrical Doppler"
  - "The future of ultrasound imaging"
- November 3, 1990 IEEE Engineering in Medicine and Biology Society 12th Annual International Conference, Philadelphia, PA
- "Doppler Ultrasound I; Doppler Ultrasound II" (session chairman)
  - "Intravenous contrast agent for ultrasound Doppler: In vivo measurement of small vessel dose-response"
- November 8-10, 1990 Visiting Professor, Mayo Clinic, Rochester, MN
- "Carotid Doppler ultrasound"
  - "Obstetrical Doppler"
  - "Hemodynamics for PV diagnosis"
- December, 1990 The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North American, Chicago, IL
- "Vascular screening with ultrasound: State of the art imaging (RSNA/AAPM Symposium)"
  - "Intravenous US contrast agent for tumor diagnosis: Quantitative studies"
- January 7, 1991 International Society for Ultrasound in Obstetrics and Gynaecology, London, England
- "Physical basis for Doppler examination of the fetus" (session chairman)
- February 23-27, 1991 The 35th Annual Convention of the American Institute of Ultrasound in Medicine, Atlanta, GA
- "Physics of color Doppler"
  - "The Doppler spectrum and hemodynamics" - Categorical course
  - "Clinical abdominal Doppler" - Categorical course
- February 28, 1991 National Academy of Sciences, Institute of Medicine, Washington, DC
- "Ultrasound: Research briefing on imaging biological events"
- April, 1991 British Institute of Radiology Annual Meeting, Brighton, England
- "Ultrasound contrast agents: Initial experience"
- May, 1991 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- Doppler tutorial day: (Co-ordinator and session chairman)
  - "Principles of color Doppler"
  - "Artifacts in Doppler; Doppler in the 1990's"

June 6-10, 1991

The Erlangen Clinical Conference Series, Second International Conference on Digestive Diseases: Innovations in Abdominal Ultrasound-Frontiers and Beyond, Erlangen, Germany

- "Doppler and flow imaging in tissue characterization" (session chairman, lecturer)

June, 1991

David J. Phillips Doppler Conference, Rosario, WA

- "Contrast agents, scattering and flow models" (session chairman, lecturer)

**P. MACKE CONSIGNY, Ph.D**

February 18-19, 1991

16th Annual Meeting of the Society of Cardiovascular and Interventional Radiology, San Francisco, CA

- "Pathophysiology of atherosclerosis"
- "Release of smooth muscle cell mitogens from atherosclerotic arteries after balloon angioplasty"

May 20-21, 1991

Vascular Interventional Techniques Program, Alecandria Hospital, Alexandria, VA

- "Pathology of vascular disease"
- "Pathophysiology of vascular intervention"

June 6-10, 1991

The Erlangen Clinical Conference Series, Second International Conference on Digestive Diseases: Innovations in Abdominal Ultrasound-Frontiers and Beyond, Erlangen, Germany

- "Pathophysiology of atheroscleerosis"
- "Release of smooth muscle cell mitogens from atherosclerotic arteries after balloon angioplasty"
- "Amplification of serotonin-induced arterial contractions by thrombin"

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

September 14-16, 1990

Workshops in Mammography, sponsored by Workshops in Mammography, Inc., Los Angeles, CA

- "Mammographic technique, equipment, quality assurance"
- "Mammographic interpretations: Problems, pearls, and pitfalls"
- "Breast masses"

September 22-23, 1990

Annual Meeting of the American College of Radiology, Categorical Course on Breast Imaging, Nashville, TN

- "Screen-film mammography systems, processing and dedicated units"

- September 27-28, 1990 Update in Film-Screen Mammography, Postgraduate Course  
University of Virginia Department of Radiology and the  
Virginia Division of the American Cancer Society, Richmond,  
VA
- "Analysis of calcifications"
  - "The mammography report"
- October 6, 1990 Workshops in Mammography Technical Program,  
Philadelphia, PA
- "Mammographic problems and their solutions"
  - "Mammographic equipment, technique, and quality assurance"
  - "Mammographic interpretation for the technologist"
- October 10, 1990 Department of Family Practice, Chestnut Hill Hospital,  
Chestnut Hill, PA
- "Screening mammography-rationale, guidelines, clinical benefits"
- October 25, 1990 Department of Radiology, St. Lukes Hospital, St. Louis, MO
- "Breast calcifications"
- October 25, 1990 Oncology Update, New Perspectives in Cancer Management,  
sponsored by Radiation Oncology Center, Mallinckrodt  
Institute of Radiology at Washington University Medical  
Center and St. Lukes Hospital, St. Louis, MO
- "Screening and early diagnosis of breast cancer"
- November 2-4, 1990 American College of Radiology Symposium on Mammography,  
Boston, MA
- "Calcifications"
  - "Quality assurance"
  - "The mammography report"
- November 9-10, 1990 American College of Surgeons Cancer Management Course,  
Philadelphia, PA
- "Mammography"
- November 25-30, 1990 The 76th Scientific Assembly and Annual Meeting of the  
Radiological Society of North America, Chicago, IL
- "Preoperative localization procedures, Refresher Course No. 215"
- December 20-21, 1990 Department of Radiology, Wilford Hall U.S.A.F. Medical  
Center, Lackland Air Force Base, San Antonio, TX
- "Screen-film mammography systems, processing, quality control and dedicated units"
  - "Breast calcifications-detection, diagnosis and prebiopsy localization"
- December 20-21, 1990 Department of Radiology, Brooke Army Medical Center, Fort  
Sam Houston, San Antonio, TX
- "Equipment and technique for film-screen mammography"



- "Diagnosis and management of mammographic calcifications"
- December 20, 1990      Department of Radiology, University of Texas Health Sciences Center, San Antonio, TX
- "Equipment and technique for film-screen mammography"
- January 9, 1991      Radiology Grand Rounds, Department of Radiology, Albert Einstein College of Medicine, Bronx Municipal Hospital Center, New York, NY
- "Diagnosis of breast calcifications"
- January 10, 1991      Department of Radiology, Long Island Jewish Medical Center, New Hyde Park, NY
- "Evaluation and management of breast masses"
  - "Evaluation and management of breast calcifications"
- February 1-3, 1991      American College of Radiology Symposium on Mammography, Orlando, FL
- "Mammographic film-screen systems, processing and quality control"
  - "Breast calcifications"
  - "The mammography report"
- March 21-24, 1991      First Annual Breast Imaging Conference, Orlando Regional Medical Center and University of Florida College of Medicine, Orlando, FL
- "Evaluation of microcalcifications on mammograms"
  - "Benefits and risks from screening"
- April 10, 1991      Department of Radiology, Columbia University College of Physicians and Surgeons, Columbia Presbyterian Medical Center, New York, NY
- "Analysis of breast calcifications"
  - "Breast cancer screening"
- April 12-14, 1991      American College of Radiology Symposium on Mammography, Reston, VA
- "Quality control"
  - "Calcifications, Part I"
  - "The mammography report"
  - "Calcifications, Part II"
- April 25, 1991      Department of Radiology, Medical College of Virginia, Richmond, VA
- "Diagnostic evaluation of breast calcifications, Part I"
  - "Diagnostic evaluation of breast calcifications, Part II"
- April 25, 1991      Richmond Radiology Society, Richmond, VA
- "Wordings the mammographic report including medicolegal aspects"

May 16-19, 1991

The Pennsylvania Radiological Society, Annual Meeting,  
Hershey, PA

- "Medicolegal issues in mammographic reporting"

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

September 12, 1990

Visiting Professor, Michigan Ultrasound Society and William  
Beaumont Hospital, Royal Oak, MI

- "Doppler ultrasound of the liver"

May 17, 1991

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

- "Endoscopic ultrasound of the gastrointestinal tract"
- "Detection and management of fluid collections"

May 25, 1991

Controversies in Surgery, Department of Surgery, Thomas  
Jefferson Medical College, Absecon, NJ

- "Intraoperative ultrasound as an adjunct to surgery"

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

February 8, 1991

Visiting Professor, Department of Neuroradiology, The  
University of Chicago, Chicago, IL

- "MR imaging of spinal neoplasia/MR imaging of cervical  
spine trauma"

March 14, 1991

Visiting Lecturer in Radiology, The Bluegrass Radiological  
Society, Lexington, KY

- "Utility of MR in acute cervical spinal cord injuries"

March 15, 1991

Visiting Lecturer in Radiology, The University of Kentucky,  
Lexington, KY

- "Diagnostic imaging of spine tumors"

May 15, 1991

Visiting Lecturer in Neuroradiology, Jefferson MRI TME  
Center, Langhorne, PA

- "Imaging of low back pain"

**DAVID P. FRIEDMAN, M.D.**

June, 1991

Twenty-Ninth Annual Meeting of the American Society of  
Neuroradiology, Washington, DC

- "Spectrum of proximal vertebral artery dissection"

**GOEFFREY A. GARDINER, Jr., M.D.**

- November, 1990                      The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Palmaz vascular stent: Short- and intermediate-term angiographic results"
  - "Initial experiences of a multicenter transluminal revascularization registry"
- February, 1991                      16th Annual Meeting of the Society of Cardiovascular and Interventional Radiology, San Francisco, CA
- "A multicenter registry for peripheral artery revascularization procedures"
- May, 1991                              New England Society of Cardiovascular and Interventional Radiology, Boston, MA
- "Angiographic results of the Palmaz stent in the iliac arteries"
- May, 1991                              Vascular Interventional Techniques Program, Alexandria, VA
- "Angiographic results of the Palmaz stent in the iliac arteries"
- May, 1991                              Connecticut Angiography and Interventional Society, New Haven, CT
- "Angiographic results of the Palmaz stent in the iliac arteries"

**BARRY B. GOLDBERG, M.D.**

- August 31-  
September 4, 1990                      Thirty-First Annual Convention, University of Puerto Rico Medical Alumni, Puerto Rico
- "Past, present and future of diagnostic ultrasound"
  - "Endoscopic ultrasound"
- October 6-13, 1990                      Fifteenth Annual International Body Imaging Congress, Maui, Hawaii
- "Ultrasound contrast agents"
  - "Endoluminal ultrasound"
- October 26-27, 1990                      William Frederick Sample Memorial Lecturer, Society of Radiologists in Ultrasound, Chicago, IL
- "A gamut of color Doppler"
  - "Non-vascular endoluminal ultrasound"
- October 31, 1990                      Annual Emanuel J. Levin Memorial Visiting Lectureship, Maimonides Medical Center, Brooklyn, NY
- "Color Doppler ultrasound"
  - "Advances in ultrasound: Contrast agents and endoluminal ultrasound"

- November 7-8, 1990 Northeastern Ohio Ultrasound Society, Independence, OH
- "Advances in color Doppler and endoluminal ultrasound"
- November 7-8, 1990 Aultman Hospital, Canton, OH
- "Gynecologic ultrasound"
- November 7-8, 1990 University Hospital, Cleveland, OH
- "Color Doppler and endoluminal ultrasound"
- November 15, 1990 Alpha Eta Annual Meeting (Allied Health National Honor Society), Philadelphia, PA
- "Integration of allied health professionals into the research components of medicine, particularly diagnostic medical ultrasound"
- November 24-25, 1990 The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Non-vascular endoluminal ultrasound: Its multiple uses in humans"
- December 6-7, 1990 1990 Postgraduate Course in Gastroenterology, Update in Gastroenterology and Hepatology, New York, NY
- "Comparison of imaging techniques in abdominal disease" - panel discussion
- January 5-10, 1991 First World Congress of Ultrasound in Obstetrics and Gynecology, London, England
- "Uterine and cervical pathology" - Chairman, Round Table Session
  - "Evaluation of uterine abnormalities using endoluminal ultrasound catheters"
- January 18-19, 1991 Conference: Current Perspective on Contrast Media, Clinical Safety and Economic Principles for Selection of an Agent, Charlotte, NC
- "Contrast agents in ultrasound"
- February 6, 1991 San Diego Radiology Society Meeting, San Diego, CA
- "Doppler ultrasound"
- February 6-8, 1991 Computers in Medical Imaging and Graphics Course, Intraluminal Ultrasound Imaging Seminar, San Diego, CA
- "Abdominal case review and interpretation"
  - "Endoluminal ultrasound"
- February 14, 1991 American Association for the Advancement of Science Annual Meeting, Washington, DC
- "Endoluminal Ultrasound"
- February 23-27, 1991 The 35th Annual Convention of the American Institute of Ultrasound in Medicine, Atlanta, GA
- "Miniature endoluminal ultrasound catheters: Their nonvascular uses in humans"

- "Government regulations and other factors affecting ultrasound"

April 13-17, 1991

Fifth Latin American Congress of Ultrasound, Sao Paulo, Brazil

- "Color Doppler in the extremities and soft tissue"
- "Endovascular endoscopic ultrasound"
- "Ultrasound contrast agents"
- "Pancreas" - Interventional ultrasound workshop
- "Duplex Doppler and color in portal hypertension - Techniques and indications"
- "Education and training of ultrasound" - Co-ordinator of workshop

April 17-20, 1991

Argentinian Congress of Ultrasound Imaging, Buenos Aires, Argentina

- "Color Doppler vs conventional Doppler experience at Thomas Jefferson University"
- "Endoluminal ultrasound"
- "Non-atherosclerotic peripheral vascular abnormalities"

April 22-26, 1991

Fifty-Eighth Annual Meeting of the Japan Society of Ultrasonics in Medicine, Kyoto, Japan

- Keynote Lecturer, "Miniature ultrasound catheters"
- "Recent advances in color Doppler imaging"
- "Endoluminal ultrasound: Is it possible to diagnose early pancreatic cancer?"

April 26-28, 1991

Sixteenth Annual Spring Diagnostic Ultrasound Conference, Los Angeles Radiological Society, Los Angeles, CA

- "Contrast agents in ultrasound"
- "Endoluminal ultrasound using the newly developed intra-vascular catheter"
- "Endosonography in the evaluation of the esophagus, stomach, rectum, prostate and bladder" - a workshop

April 28,  
May 2, 1991

Eleventh Annual Spring Diagnostic Post Conference, Los Angeles Radiological Society, Palm Springs, CA

- "Vaginal ultrasound in gynecology"
- "Color Doppler in the pediatric patient"
- "Endosonography of the prostate"
- "Color Doppler of the lower extremities"

May 15-17, 1991

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

- "Endoluminal ultrasound"

May 23-30, 1991

Ultrasound Update Conference, The South African Medical Ultrasound Society, Johannesburg, South Africa

- "Prostate ultrasound"
- "Obstetric ultrasound in 1991"
- "Color Doppler in superficial vessels"
- "Endovaginal ultrasound"
- "Ultrasound contrast agents"

- "Color Doppler in the abdomen and pelvis"
- "Endoluminal ultrasound"
- "Ultrasound in gynaecology"

May 31-  
June 6, 1991

Sixteenth Congress of the Hungarian Radiological Society,  
Budapest, Hungary

- "Vaginal and prostate ultrasound"
- "Endoluminal ultrasound"
- "Ultrasound contrast agents"

June 6-10, 1991

The Erlangen Clinical Conference Series, Second  
International Conference on Digestive Diseases: Innovations  
in Abdominal Ultrasound-Frontiers and Beyond, Erlangen,  
Germany

- "Can air filled albumin microspheres improve tumor detection?"
- "Miniature transducer containing catheters"
- "Contrast medium in ultrasonography" - session chairman

### CARLOS F. GONZALEZ, M.D.

September 13, 1990

Grand Rounds, Department of Radiology, State University of  
New York at Stony Brook, Long Island, NY

- "Modern treatment of cerebral aneurysms"

October 27-29, 1990

Annual Congress of the Chilean Society of Neurological  
Surgery, Villa del mar, Chile

- "MRI of acute cervical spine trauma"
- "The role of MRI in the diagnosis of dementia"
- "The role of MRI in diagnosis of intraocular process"

December 3, 1990

Lehigh Valley Radiological Association, Bethlehem, PA

- "The role of MRI in the diagnosis of Alzheimer's disease"

February 5-7, 1991

Barrow Neurological Institute of St. Joseph's Hospital and  
Medical Center, Phoenix, AZ

- "The role of MRI in the diagnosis of ocular and orbital pathology"
- "The role of MRI in the diagnosis of traumatic lesions of the central nervous system"
- "The role of MRI in the diagnosis of lesions of the base of the skull"

March 16-20, 1991

The 5th Annual Meeting of the American Academy of  
Physical Medicine and Rehabilitation, Phoenix, AZ

- "Imaging techniques in the central nervous system"

April 1, 1991

Grand Rounds, Department of Radiology, University of  
Minneapolis, MN

- "Computer modeling in human intracranial aneurysm"



May 8, 1991

Mercy Catholic Medical Center, Philadelphia, PA

- "New approaches to the diagnosis of infectious disease of the central nervous system"

**GEORGE W. GROSS. M.D.**

October 11, 1990

Radiology Grand Rounds, Health Sciences Center at Stony Brook, Long Island, NY

- "ECMO in the neonate: Clinical and imaging considerations"

March 28, 1991

Radiology Grand Rounds, Medical Center Hospital of Vermont, Burlington, VT

- "Imaging of the neonate on ECMO"

May 7, 1991

American Roentgen Ray Society Annual Meeting, Boston, MA

- "Radial fracture analysis using neural networks"

**THOMAS G. HELINEK. M.D., Ph.D.**

March 28, 1991

Wilford Hall United States Air Force, San Antonio, TX

- "Scrotal Ultrasound"
- "Prostate anatomy and pathogenesis of disease"

Brooke Army Medical Center, San Antonio, TX

- "Scrotal Ultrasound"
- "Prostate anatomy and pathogenesis of disease"

University of Texas Health Sciences Center, San Antonio, TX

- "Scrotal Ultrasound"
- "Prostate anatomy and pathogenesis of disease"

May 30, 1991

The Lehigh Valley Society of Ultrasound in Medicine Meeting, Allentown Hospital, Allentown, PA

- "Endorectal sonography of the prostate"

**DAVID KARASICK. M.D.**

October 17, 1990

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

- "A systematic approach to the diagnosis of primary tumors of bone"

1990 - 1991

Orthopedic-Radiologic-Pathologic Meetings

- Panelist

**STEPHEN KARASICK, M.D.**

- September 11-14, 1990      Uroradiology 1990, 10th Postgraduate Course, The Society of Uroradiology, Vancouver, British Columbia, Canada  
"Hysterosalpingography Workshop"
- October 24, 1990      Mercy Catholic Medical Center, Department of Radiology, Darby, PA  
• "Lower GU tract"
- March 20, 1991      Annual Meeting of the Association of University Radiologists, Orlando, FL  
• "Hysterosalpingography and laparoscopy in the assessment of tubal occlusion including the effect of the time interval between studies"

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

- September 7-9, 1990      Diagnostic Ultrasound in Obstetrics and Gynecology and Abdomen, Baltimore, MD  
• "The ultrasound approach to growth retardation"  
• "The adnexa: Normal and abnormal"  
• "Vaginal ultrasound: Its uses in pregnancy"
- September 18, 1990      Greater Delaware Valley Ultrasound Society, Philadelphia, PA  
• "Second and third trimester fetal anomalies"
- November 25-30, 1990      The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL  
• "Fetal US: Parameters needed for accurate assessment"  
• "Detection of retained products of conception following spontaneous abortion in the first trimester"  
• Ultrasound (obstetrics: fetus) - session moderator
- December 11, 1990      Visiting Professor, Department of Radiology, St. Luke's Roosevelt Hospital Center, New York, NY  
• "Second and third trimester fetal anomalies"  
• Ultrasound and CT case presentation to residents  
• "First trimester ultrasound" - Grand Rounds
- January 18-20, 1991      Fourteenth Annual Advanced Ultrasound Seminar OB/GYN Ultrasound, Lake Buena Vista, FL  
• "The ultrasound approach to growth retardation"  
• "The biophysical profile: Concept, application and pitfalls"  
• "The fetal central nervous system"
- February 24-27, 1991      The 35th Annual Convention of the American Institute of Ultrasound in Medicine, Atlanta, GA  
• "The detection of retained products of conception following spontaneous abortion in the first trimester"  
• Program chairman-special sessions

- March 6, 1991      Visiting Professor Conference, Department of Medical Imaging, Residency Training Program, Mercy Catholic Medical Center, Fitzgerald Mercy Hospital, Darby, PA
- Case presentations
- March 15, 1991      GU Radiology, New England Roentgen Ray Society, Cambridge, MA
- Featured speaker - "Ultrasound of the fetal abdomen"
  - Panelist: Panel of unknown cases
- April 2-5, 1991      The Ultrasound 1991 Conference of the Harvard Medical School, Department of Radiology and Continuing Education, Brigham and Women's Hospital, Boston, MA
- "First trimester ultrasound"
  - "Biophysical profile: Concepts, applications and pitfalls"
  - "Fetal anomalies: Head, face, spine, skeletal"
- May 15-17, 1991      The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Assessment of fetal well-being: The biophysical profile revisited"
  - Categorical Course section I and II
  - "Multiple gestations: Evaluation and management"

**ANNA S. LEV-TOAFF, M.D.**

- February 24-27, 1991      The 35th Annual Convention of the American Institute of Ultrasound in Medicine, Atlanta, GA
- "The role of diagnostic imaging in puerperal febrile morbidity"
- May 7, 1991      American Roentgen Ray Society Annual Meeting, Boston, MA
- "Diagnostic imaging in puerperal febrile morbidity"

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

- October 4, 1990      4th Annual Stanford Bluestein Lecture of the Department of Radiology, Yale University School of Medicine, New Haven, CT
- "Radiology training in the 1990s - a prescription for change"
- October 4, 1990      Yale University School of Medicine, New Haven, CT
- "Use of stents in the peripheral circulation"
- October 21, 1990      Society of Chairmen of Academic Radiology Departments, San Francisco, CA
- "Training standards for peripheral angioplasty"

- November 14, 1990 American Heart Association, Dallas, TX
- "Coronary sterosis morphology: Correlation between pathologic specimens and angiography"
- November 28-30, 1990 The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Diagnostic and interventional coronary angiography"
- January 16, 1991 Washington Interventional Radiology Society, Washington, DC
- "Current political and economic issues in interventional radiology"
- January 31, 1991 American College of Cardiology Course, "Diagnostic and Interventional Cardiac Catheterization - 1991", Bethesda, MD
- "Technical considerations in cardiac imaging"
- March 20, 1991 Annual Meeting of the Association of University Radiologists, Orlando, FL
- "Consideration of a five-year training program in radiology"
- April 8, 1991 Tucson Radiological Society, Tucson, AZ
- "How can radiologists maintain control of radiology?"
- April 8-9, 1991 University of Arizona Health Sciences Center, Tucson, AZ
- "Plain film analysis of adult heart disease"
  - "Use of stents in the arterial circulation"

**ESMOND M. MAPP, M.D.**

- July 22, 1990 95th Annual NMA Scientific Assembly, Las Vegas, NV
- "Defecography and the evacuation disorders"
- September 9, 1990 Visiting Professor, Reading Hospital and Medical Center, Reading, PA
- "Imaging in colon cancer"
- October 14, 1990 Invited Speaker, 35th Annual Meeting, Southern Medical Association, Nashville, TN
- "Dynamic defecography for the diagnosis of surgically correctable colorectal dysfunction"
- May 4-5, 1991 Seccion de Radiologia, Asociacion Medica de Puerto Rico, San Juan, Puerto Rico
- "The many faces of the right lower quadrant"
  - "Imaging in colon cancer"
  - "Meckel's diverticulum"
  - "Gastrointestinal manifestations of AIDS"

**BARBARA L. McCOMB, M.D.**

- May 14, 1991                      Thoracic Imaging 1991, Society of Thoracic Radiology Annual Meeting, Toronto, Canada
- "Neuroendocrine neoplasm of the thymus: The evaluation of patients with Cushings Syndrome"

**MARK M. MISHKIN, M.D.**

- July, 1990                      Current Perspectives on Contrast Media, Los Angeles, CA
- "Clinical safety and economic principles for selection of an agent"
- July 25, 1990                      Boston University, Boston, MA
- "Principles for selection of contrast media"
- August 9, 1990                      Annual Meeting, American Hospital Radiology Administration, Washington, DC
- "Contrast media: Cost and safety considerations"
- September 6, 1990                      Forum on Issues in Diagnostic Imaging, Tucker's Town, Bermuda
- "Issues in diagnostic imaging"
- September 8, 1990                      Henry Ford Hospital, Detroit, MI
- "Principles for selection of contrast media"
- May 1, 1991                      Eastern Radiological Society, Sea Island, GA
- "MRI of long standing brain injury"

**DONALD G. MITCHELL, M.D.**

- August 18-24, 1990                      Society of Magnetic Resonance in Medicine Ninth Annual Scientific Meeting and Exhibition, New York, NY
- "The liver and pancreas: Improved spin-echo T1 contrast by shorter TE and fat suppression at 1.5 Tesla"
  - "MRI of bone marrow"
- October 13, 1990                      General Electric MRI Technologist Symposium, Philadelphia, PA
- "MRI of the liver- Technical optimization"
- October 26, 1990                      UCLA Color Doppler Course, Los Angeles, CA
- "Color Doppler imaging - Principles and artifacts"
  - "Color Doppler imaging obstetrics"
  - "Color Doppler imaging of the brain and eye"

- February 23-27, 1991      The 35th Annual Convention of the American Institute of Ultrasound in Medicine, Atlanta, GA
- "Color Doppler" - course
- April 9, 1991      Radiology Grand Rounds, Johns Hopkins Medical Institutions, Baltimore, MD
- April 13-17, 1991      Radiology Grand Rounds
- April 13-17, 1991      The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Hepatic cirrhosis: MR imaging diagnosis with histologic correlation"
  - "Fat within hepatic masses: Chemical shift MR imaging and histology"
  - "Fatty liver in rat graded with chemical shift MR imaging"
- May 17, 1991      Pennsylvania Roentgen Ray Society, Hershey, PA
- "MRI of the female pelvis"
- June 15, 1991      George Washington University Medical Center, Washington, DC
- "Principals and pitfalls of color Doppler"
  - "Doppler of the liver and portal venous system"
- June 19, 1991      Jefferson MRI TME Center, Langhorne, PA
- "MRI of the liver"
- June 21, 1991      Pennsylvania, Alumni Symposium on Recent Advances in MR Imaging, Hospital of the University of Pennsylvania, Philadelphia, PA
- "Kaopectate revisited: An inexpensive diamagnetic oral MR agent for negative and positive enteric contrast"
- June 24-26, 1991      Hospital Centraal de Cruz Roja Espanola, Madrid, Spain
- "MRI of the male pelvis"
  - "MRI of the female pelvis"
  - "MRI of the retroperitoneum"
  - MRI Update Course

#### **LAURENCE NEEDLEMAN, M.D.**

- August 13-16, 1990      The 11th Annual Symposium on Diagnostic Imaging, Brown University and Rhode Island Hospital, Newport, RI
- "Overview of abdominal Doppler"
  - "Obstetrical ultrasound measurements"
  - "Ultrasound and alpha-fetoprotein testing"
- October 25, 1990      Visiting Professor, Department of Radiology, New York University Medical Center, New York, NY
- Obstetrical Case Studies
  - "Ultrasound and alpha-fetoprotein testing" - Grand Rounds



- October 26-28, 1990      The Annual Meeting of the Society of Radiologists in  
Ultrasound, Chicago, IL
- "Carotid dissection without intimal flap"
- November 13-14, 1990      63rd Annual Scientific Sessions, American Heart Association,  
Dallas, TX
- "Intravascular ultrasound" -- plenary session
  - "How to interpret peripheral vascular ultrasound studies" --  
moderator and lecturer
- November 26, 1990      The 76th Scientific Assembly and Annual Meeting of the  
Radiological Society of North America, Chicago, IL
- "Fetal ultrasound: Parameters needed for accurate  
assessment"
- February 7-9, 1991      Duplex Imaging, University of California San Diego Medical  
Center, Coronado, CA
- "Anatomy and hemodynamics of the cerebrovascular  
system"
  - "Clinical utilization of color flow angiography in carotid  
disease"
  - "Anatomy and physiology of visceral blood flow"
  - "Duplex evaluation of the genitourinary tract"
  - "Upper extremity venous evaluation"
  - "Deep venous thrombosis case review and interpretation"
- February 24-25, 1991      The 35th Annual Convention of the American Institute of  
Ultrasound in Medicine, Atlanta, GA
- "Doppler evaluation of umbilical vasculature: Normal fetal  
and animal models"
  - "Lower extremity venous ultrasound"
- March 19, 1991      Visiting Professor, Department of Radiology and Radiologic  
Science, Johns Hopkins Hospital, Baltimore, MD
- Doppler Case Studies: "Color Doppler: A survey of current  
applications"
- March 19, 1991      The Maryland Radiological Society, Baltimore, MD
- Doppler Case Studies: "Color Doppler: A survey of current  
applications"
- April 2-5, 1991      Ultrasound 1991, Brigham and Women's Hospital, Boston, MA
- "Obstetrical Doppler"
  - "Abdominal Doppler"
  - "Color Doppler: Abdominal application"
- April 2, 1991      Department of Radiology, Brigham and Women's Hospital,  
Boston, MA
- Grand Rounds - "Abdominal Doppler"
- April 2, 1991      New England Ultrasound Society, Boston, MA
- "Color Doppler"

- April 26-27, 1991 Fifth Congreso Nacional De Ultrasonido, Puerto Villarta, Mexico
- "Ultrasound of renal transplants"
  - "Color Doppler of the abdominal"
  - "Renal Doppler"
- May 13, 1991 New York Roentgen Society Spring Conference, New York, NY
- "Carotid ultrasound"
  - "Venous ultrasound"
- May, 1991 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Lower extremity venous disease"
  - "Ob/Gyn Doppler"
  - "Fetal echocardiography"

**VIJAY M. RAO, M.D.**

- November 27, 1990 The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "High-resolution spin-echo imaging of the temporomandibular joint"
  - "Comparison of pre- and post-operative MR imaging of internal derangement of the temporomandibular joint: Correlation with clinical symptoms"
- December 5, 1990 Mercy Catholic Medical Center, Fitzgerald Mercy Division, Darby, PA
- "Interesting head and neck cases: CT and MR characteristics"
- December 14, 1990 Department of Radiology, Pennsylvania Hospital, Philadelphia, PA
- "Imaging of paranasal sinus and nasopharyngeal tumors"
- February 2, 1991 Head and Neck Imaging into the 90's, sponsored by the Medical College of Pennsylvania, Atlantic City, NJ
- "Paranasal sinus lesions: Neoplastic and inflammatory"
- March 12, 1991 Newcomb Dental Society, Vineland, NJ
- "Advances in TMJ imaging"
- March 17-21, 1991 Annual Meeting of the Association of University Radiologists, Orlando, FL
- "Adenoid tissue imaging by CT: Correlation with age"
  - "Pitfalls in the interpretation of cystic masses of the head and neck: CT and MR evaluation"

**MATTHEW D. RIFKIN, M.D.**

- September 8-14, 1990      Scientific and Education Sessions of the Society of  
Uroradiology, Vancouver, Canada
- "Color Doppler of the prostate"
  - "Indications for prostate ultrasound"
  - "Workshop lower genitourinary tract imaging".- (workshop)
- October 13-17, 1990      Invited Speaker, 35th Annual Meeting, Southern Medical  
Association, Nashville, TN
- "Indications for prostate imaging"
  - "New applications for abdominal MRI"
- October 17, 1990      Delaware Urological Society, Wilmington, DE
- "Update of ultrasound, MRI and body coil imaging in  
detecting urological malignancy"
- October 27-28, 1990      Society of Radiologists in Ultrasound, Chicago, IL
- "Color Doppler of the prostate"
- October 31, 1990      Twenty-seventh Annual Andre Aisenstadt Clinical Day,  
Montreal, Quebec
- "Imaging for the prostate"
- November 9-10, 1990      Transrectal Ultrasound Seminar, presented by Teknar, New  
Orleans, LA
- "Benign disease"
  - "Ultrasound of the kidneys, bladder and scrotum"
- November 15, 1990      Riverside Hospital, Wilmington, DE
- "Proper uses of MRI"
- December 12, 1990      Twenty-Seventh Annual Clinic Day, The Nassau Surgical  
Society, Inc. Manhasset, NY
- "Imaging of prostate: Applications, indications"
- January 9-13, 1991      The George Washington University Medical Center,  
Department of Radiology, MRI: Present and Future, Naples, FL
- "How to examine the abdomen with MRI"
  - "MRI of male pelvis"
  - "MRI of kidney/adrenal"
  - "MRI of liver/pancreas"
- Januray 28, 1991      American College of Radiology - Institutional Review Board  
Meeting, Philadelphia, PA
- "The RDOG experience"
- February 2, 1991      Visiting Professor, Sadie Newcomb, Medical Center,  
Vineland, NJ
- "Diagnosis of prostate diaease"

- February 21, 1991 Delaware Valley Magnetic Resonance Imaging Society, Philadelphia, PA
- "MRI of the pelvis"
- February 25-  
March 1, 1991 Prostate Ultrasound Screening? Sun Valley Imaging, Sun Valley, ID, sponsored by the University of British Columbia
- "Prostatic MRI-is there a role?"
  - "P & S"
- March 15, 1991 New England Section of the American Urological Association, Worcester, Mass and the Lahey Clinic Medical Center, Burlington, MA
- "Imaging of the prostate"
- April 4, 1991 Blue Ribbon Lecture, Philadelphia Roentgen Ray Society, Philadelphia, PA
- "Imaging of the Scrotum"
- May 7, 1991 Categorical Course in Spine and Body Magnetic Resonance Imaging, American Roentgen Ray Society 91st Annual Meeting, Boston, MA
- "Male pelvis prostate/bladder"
- May 15-17, 1991 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Endorectal ultrasound prostate"

**SHARON R. SEGAL, D.O.**

- April 21, 1991 Mid Year Conference of the American Osteopathic College of Radiology, Philadelphia, PA
- "Uses of endovaginal ultrasound in obstetrics"
- May 15-17, 1991 The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University Hospital, Atlantic City, NJ
- "Stump the stars"
- May 30, 1991 Delaware Medical Society, Riverside Hospital, Wilmington, DE
- "Uses of CT in the trauma patient"

**MARCELLE J. SHAPIRO, M.D.**

- October 11, 1990 Capitol District Angiography-Interventional Radiology Society, Albany Memorial Hospital, Albany, NY
- "Endoprostheses in the management of malignant biliary obstruction"

October 11, 1990

Albany Memorial Hospital, Albany, NY

- "Transluminal revascularization of common and external iliac arteries with the Palmaz stent" - Grand Rounds

**PAUL W. SPIRN, M.D.**

September 26, 1990

Visiting Professor, Internal Medicine Grand Rounds, St. Joseph's Hospital, McMaster University School of Medicine, Hamilton, Ontario

- "Intensive care chest radiology"

September 27, 1990

Internal Medicine Grand Rounds, St. Elizabeth's Hospital, Elizabeth, NJ

- "Practical ICU Radiology"

October 16, 1990

Visiting Professor, Department of Diagnostic Radiology, University of Maryland School of Medicine, Baltimore, MD

- "Radiology of pneumonectomy and lobectomy"

October 16, 1990

Maryland Radiological Society, Baltimore, MD

- "Intensive care radiology - A guide for the perplexed"

November 27, 1990

The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Critical care chest radiology -- Plain film interpretation: A survival guide" -- refresher course

April 22, 1991

Radiology Grand Rounds, Medical Center of Delaware, Christiana, DE

- "Chest radiology of intensive care patients"

May 14, 1991

Thoracic Imaging 1991, Society of Thoracic Radiology Annual Meeting, Toronto, Canada

- "Radiology of pneumonectomy"
- "Congenital heart disease in the adult" - Refresher course

**ROBERT M. STEINER, M.D.**

November 18, 1990

University of California at Davis, East Bay Campus, Martinez Veterans Administration Hospital, Martinez, CA

- "MRI of bone marrow diseases"

December 5, 1990

Chestnut Hill Hospital, Philadelphia, PA

- "MRI in bone marrow diseases"

February 15, 1991

Monthly Meeting of the South Bay Radiological Society, San Jose, CA

- "Congenital heart disease in the adult"

- April 29, 1991      Medical Grand Rounds, University of California,  
San Francisco, CA
- "MRI in diffuse bone marrow disorders"
- May 14, 1991      Thoracic Imaging 1991, Society of Thoracic Radiology Annual  
Meeting, Toronto, Canada
- "Congenital heart disease in the adult" - refresher course

**KEVIN L. SULLIVAN, M.D.**

- August 30, 1990      8th World Congress on Endourology and ESWL, Washington,  
DC
- "Transhepatic laser lithotripsy of choledocholithiasis:  
Initial clinical experience"
- November 11, 1990      63rd Session of the American Heart Association, Dallas, TX
- "How to assess the role of thrombolytic agents in the  
peripheral circulation" - moderator
- February 7, 1991      Blue Ribbon Lecture, Philadelphia Roentgen Ray Society,  
Philadelphia, PA
- "Factors influencing hemorrhagic complications during  
regional thrombolysis"
- February 18-20, 1991      16th Annual Meeting of the Society of Cardiovascular and  
Interventional Radiology, San Francisco, CA
- Stent Workshop
  - Thrombolysis Workshop
  - "In vitro assessment of a temporary vena cava filter"
- March 20, 1991      Annual Meeting of the Association of University Radiologists,  
Orlando, FL
- "The relationship between dialysis fistula pressures and  
stenosis"
- June 20, 1991      Eastern Shore Medical Symposium, Rehoboth, DE
- "Peripheral vascular disease-evaluation and  
management"

**TALIN A. TASCIYAN, Ph.D.**

- February 27, 1991      Seminar, Drexel University, Philadelphia, PA
- "Introduction to MRI with emphasis on flow imaging"
- April 13-17, 1991      Ninth Annual Meeting of the Society for Magnetic Resonance  
Imaging, Chicago, IL
- "Color MR imaging of flow: Simultaneous unambiguous  
2D display of phase (flow direction) and magnitude  
(stationary tissue)"



**TERRI TUCKMAN, M.D.**

April, 1991

University of Rochester, Rochester, NY

- "Abnormalities of the cervix and placenta"
- "Congenital abnormalities of the central nervous system"

**SIMON VINITSKI, Ph.D.**

August 18-24, 1990

Society of Magnetic Resonance in Medicine Ninth Annual Scientific Meeting and Exhibition, New York, NY

- "MR angiography, chemical shift imaging and high resolution spectroscopy of atherosclerotic plaque"
- "Superparamagnetic ferrosomes in MR imaging of lung parenchyma, pulmonary emboli, liver and heart"

November 3, 1990

IEEE Engineering in Medicine and Biology Society 12th Annual International Conference, Philadelphia, PA

- "Optimization of the excitation RF pulse in combined inversion recovery gradient and spin-echo (IR-GREASE) technique"

December 1, 1990

The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Variable flip angle chemical shift MR imaging using a 4.0T whole body scanner"

April 14-17, 1991

Ninth Annual Meeting of the Society of Magnetic Resonance Imaging, Chicago, IL

- "Reduction of motion artifact by fat suppression"
- "Fast combined inversion recovery gradient and spin-echo technique: Image contrast and tissue characterization"
- "Study of arterial flow from magnetic resonance angiography (MRI) using computer simulation"

**RICHARD J. WECHSLER, M.D.**

November 29, 1990

The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL

- "Preoperative staging of breast carcinoma with thoracic CT: Radiologic-pathologic correlation of axillary lymph nodes"

January 3, 1991

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

- "Radiologic manifestations of thoracic mesothelioma"

February 6, 1991

Mercy Catholic Hospital, Philadelphia, PA

- "Radiographic localization of mediastinal pathology"

April 10, 1991

Chestnut Hill Hospital, Philadelphia, PA

- "Radiology of mesothelioma"

May 15, 1991

Thoracic Imaging 1991, Society of Thoracic Radiology, Toronto, Canada

- "Radiological manifestations of thoracic mesothelioma" - Annual Post Graduate Course

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## EXHIBITS AND POSTER PRESENTATIONS

### **The 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL - 1990**

- "Fluoroscopy CT system for small animal and specimen computed tomography." (JM Boone, GM Alexander, JA Siebert)

### **The Ninth Annual Meeting of the Society of Magnetic Resonance in Medicine, New York, NY - 1990**

- "Early hepatocellular carcinoma within siderotic macroregenerative nodules: The 'nodule-in-nodule' sign on MR images" (DG Mitchell, R Rubin, DL Burk, MD Rifkin)

### **Ninty-first Annual Meeting of the American Roentgen Ray Society, Boston, MA - 1991**

- "Radial Fracture analysis using neural networks." (JM Boone, GW Gross)
- "Radiographic and sonographic appearances of thoracic complications of extracorporeal membrane oxygenation (ECMO)." (GW Gross, J Cullen, MS Kornhauser, PJ Wolfson)  
Award: Certificate of Merit

### **The 29th Annual Meeting of the American Society of Neuroradiology, Washington, DC - 1991**

- "Hemodynamic changes observed in experimental lateral saccular aneurysms after coil deposition." (CF Gonzalez, HV Ortega, YI Cho)

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**HONORS, EDITORIAL ACTIVITIES, SERVICE FOR  
NATIONAL OR REGIONAL ORGANIZATIONS**

**ARCHIE A. ALEXANDER, M.D.**

- Member, Abdomen Scientific Review Committee, 1991 Annual Convention of the American Institute of Ultrasound in Medicine

**JOSEPH BONN, M.D.**

- Moderator, Scientific Session on Vascular Stents, 1991 Meeting of the Society of Cardiovascular and Interventional Radiology
- Membership Committee, Society of Cardiovascular and Interventional Radiology
- Abstract Reviewer, 1991 Meeting of the Society of Cardiovascular and Interventional Radiology
- Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Journal of Vascular and Interventional Radiology*
- Reviewer, *Investigative Radiology*
- Reviewer, *Cardiovascular Interventional Radiology* (abstracts)
- ✧ 1990 Editor's Recognition Award with Special Distinction, *Radiology*

**JOHN M. BOONE, Ph.D.**

- Diplomate of the American Board of Medical Physics, Diagnostic Radiology (1991)
- Chairman, AAPM Task Force on Image Intensifier Exposure Rates
- Member, AAPM Diagnostic X-ray Imaging Committee
- Member, AAPM Task Force in Exposure Meters in Diagnostic Radiology
- Member, AAPM Task Force on Quality Assurance in Diagnostic Radiology
- Member, Site Visit Team, National Cancer Institute
- Reviewer, *Medical Physics*
- ✧ Certificate of Merit Award, "Radiographic and sonographic appearances of thoracic complications of extracorporeal membrane oxygenation (ECMO)." Scientific Exhibit at the Annual Meeting of the American Roentgen Ray Society

**D. LAWRENCE BURK, Jr. M.D.**

- Safety Committee, Society of Magnetic Resonance Imaging
- MR Core Curriculum Committee, Society of Magnetic Resonance Imaging
- Reviewer, Society of Magnetic Resonance in Medicine (abstracts)
- Reviewer, *Radiology* (Musculoskeletal MRI)
- ✧ Charles S. Neer II Award Paper, "Correlation of MRI and Arthrography with Surgical Findings in Rotator Cuff Disease", The American Shoulder and Elbow Surgeons
- ✧ Certificate of Merit Award, "Radiographic and sonographic appearances of thoracic complications of extracorporeal membrane oxygenation (ECMO)." Scientific Exhibit at the Annual Meeting of the American Roentgen Ray Society

**PETER N. BURNS, Ph.D.**

- Member, Imaging Sciences Special Study Section XB3, National Institutes of Health
- Board of Directors, International Perinatal Doppler Society
- Outside Reviewer, NIH Diagnostic Radiology Study Section
- Reviewer, Sterling Winthrop Imaging Research Institute
- Member, AIUM International Committee
- Member, AIUM Standards Committee
- Chairman, AIUM Doppler Standards Subcommittee
- Member, AIUM Nomenclature Subcommittee
- Scientific Program Committee, AIUM Annual Meeting
- Appointment Honorary Member, Australasian Ultrasound Society
- Review Committee, International Perinatal Doppler Society
- Editorial Board, *Ultrasound in Medicine and Biology*
- Editorial Board, *Journal of Ultrasound in Medicine*
- Editorial Board, *Journal of Vascular Technology*
- Reviewer, *Radiology*
- Reviewer, *American Journal of Physiology*
- Reviewer, *Gastroenterology*
- Reviewer, *IEEE Transactions of Sonics and Ultrasonics*
- Reviewer, *Investigative Radiology*
- Reviewer, *Journal Clinical Ultrasound*
- Reviewer, *Medical Instrumentation*
- Reviewer, *Journal of the American Medical Association*
- Reviewer, *Circulation*
- Reviewer, *Journal of Maternal-Fetal Medicine*

**P. MACKE CONSIGNY, Ph.D.**

- Reviewer (abstracts), Scientific Session for the Society of Cardiovascular and Interventional Radiology
- Reviewer, *Investigative Radiology*
- Reviewer, *Journal of Cardiovascular and Interventional Radiology*

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

- Guest Examiner, American Board of Radiology
- Member, Written Examination Committee, American Board of Radiology
- Expert Witness, Mammography Section, Task Force for Standard Setting in Radiology, American College of Radiology
- Co-Chairman, Intersociety Committee on Systematized Refresher Courses , Faculty on Breast Disease, American College of Radiology
- Member, Committee on ACR Symposia, American College of Radiology
- Member, Committee on Breast Imaging, American College of Radiology
- Member, Breast Task Force, American College of Radiology
- Member, Committee on Mammography Home Study Course, American College of Radiology
- Member, Committee on Mammography Reporting and Data Base System, American College of Radiology
- Co-Chairman, Program Committee, 25th National Conference on Breast Cancer (1992), American College of Radiology
- Member, Committee on Mammography Symposia, American College of Radiology
- Member, Committee on Residency Training, American College of Radiology

- Center for Disease Control - American College of Radiology Cooperative Agreement for Quality Assurance in Mammography
  - Chairman, Committee on Correlation of Phantom and Clinical Image Quality
  - Member, Oversight Committee
  - Member, Committee on Radiologists' Education
  - Member, Data Analysis and Research Committee
- Member, Mammography Advisory Committee, American Registry of Radiology Technologists
- Editor, *Breast Diseases, A Year Book Quarterly*
- Co-Editor, *Breast Disease, An International Journal*
- Section Editor (Breast), *Current Opinion in Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Journal of the American Medical Association*
- Reviewer, *RadioGraphics*
- Reviewer, *Cancer*
- Reviewer, *Radiology*
- Reviewer, *Breast Cancer Research and Treatment*
- Reviewer, *Journal of the National Cancer Institute*
- ✧ Sociedad Latinoamericana de Imagenología Mamaria-SOLADIM (Latin American Society of Breast Imaging). Founding Member, 1990 Honorary International Editorial Committee of Society Journal (FOCUS)
- ✧ Societe Francaise de Mastologie et D'imagerie du sein (French Society of Mastology and Breast Imaging). Editorial Advisory Committee, *Journal Le Sein* (The Breast) 1991
- ✧ 1990 Editor's Recognition Award with Special Distinction, *Radiology*

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

- Consultant, Squibb Diagnostics Contrast Division
- Appointed Member of the Squibb Diagnostics Contrast Speakers Bureau

#### **GEOFFREY A. GARDINER, Jr. M.D.**

- Associate Editor, *Radiology* (Cardiac section)
- Associate Editor, *Journal of Vascular and Interventional Radiology*
- Consulting Editor, *Cardiovascular and Interventional Radiology*
- Reviewer, *Radiology* (Cardiac, Interventional and Vascular sections)
- Reviewer, *Cardiovascular and Interventional Radiology*
- Reviewer, *Circulation* (Peripheral vascular and interventional section)

#### **BARRY B. GOLDBERG, M.D.**

- President-Elect, World Federation for Ultrasound in Medicine and Biology
- Treasurer, World Federation for Ultrasound in Medicine and Biology
- Chairman, Archives Committee, American Institute of Ultrasound in Medicine
- Chairman, Archives Committee, World Federation for Ultrasound in Medicine and Biology
- Co-Chairman, Audit Committee, World Federation for Ultrasound in Medicine and Biology
- Member, Harvard Evaluation Group
- Member, Advisory Editorial Board and International Liaison Committee, Ultrasound in Medicine and Biology
- Member, Awards Committee, American Institute of Ultrasound in Medicine
- Member, Executive Committee, International Association for Endosonography



- Member, International Organizing Committee for the International Congress on the Ultrasonographic Examination of the Breast
- Member, Administrative Council, World Federation for Ultrasound in Medicine and Biology
- Member, Committee on Accreditation, American College of Radiology
- Member, Museum Exhibits Committee, 1995 Centennial Celebration, American College of Radiology
- Member, Intraoperative Review Committee, 1990 Annual Convention, American Institute of Ultrasound in Medicine
- Member, Public Information Advisory Board, Radiological Society of North America
- Member, Intersociety Committee on Systemized Refresher Courses, Commission on Education, American College of Radiology
- Member, International Commission on Radiological Education, Radiological Society of North America
- Consultant, Department of Radiology, The Radiation Effects Research Foundation, Hiroshima City, Japan
- Advisor, Committee on Obstetrical Ultrasound, U.S. Healthcare, Inc., Pennsylvania
- Technical Consultant Group of the Harvard Resource-Based Relative Value Scale Study, American Medical Association
- Member, Technology Advisory Council of the Center for Advanced Sensor Technologies, Advanced Technology Center of Southeastern Pennsylvania
- Member, Channel 10 Medical Advisory Board, WCAU-TV, CBS Television Stations, Philadelphia, PA
- ✧ William Frederick Sample Memorial Lecturer, Fifteenth Annual International Body Imaging Congress, Maui, Hawaii
- ✧ Twelfth Annual Emanuel J. Levin Visiting Lectureship, Maimonides Medical Center, Brooklyn, New York

#### **CARLOS F. GONZALEZ, M.D.**

- Member, Program Committee, 28th Annual Meeting of the American Society of Neuroradiology

#### **GEORGE W. GROSS, M.D.**

- Child Abuse Committee, Pennsylvania Chapter of the American Academy of Pediatrics
- ✧ Certificate of Merit Award, "Radiographic and sonographic appearances of thoracic complications of extracorporeal membrane oxygenation (ECMO)." Scientific Exhibit at the Annual Meeting of the American Roentgen Ray Society

#### **DAVID KARASICK, M.D.**

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

#### STEPHEN KARASICK, M.D.

- Member, GU Section, Written Examination, American Board of Radiology
- Reviewer, *RadioGraphics*

#### ALFRED B. KURTZ, M.D.

- Member, Board of Governors, American Institute of Ultrasound in Medicine
- Chairperson, Nominating Committee, American Institute of Ultrasound in Medicine
- Member, Books Committee of Radiology Centennial, Inc
- Member, Informational Media Committee, American Institute of Ultrasound in Medicine
- Member, Editorial Board, *RSNA Today*
- Member, Editorial Board, *Journal of Ultrasound in Medicine*
- Reviewer, *Radiology* (Ultrasound manuscripts)
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Journal of the American Medical Association*
- Reviewer, *RadioGraphics*
- Reviewer *American Journal of Obstetrics and Gynecology*
- Reviewer, *Obstetrics and Gynecology*
- ✧ A. Edward O'Hara M.D. Award for Excellence in Teaching, Department of Radiology, Thomas Jefferson University Hospital -- June, 1991

#### ANNA S. LEV-TOAFF, M.D.

- Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Obstetrics and Gynecology*

#### DAVID C. LEVIN, M.D.

- Chairman, Council on Cardiovascular Radiology, American Heart Association
- Chairman, Cardiovascular Radiology Program Committee, Radiological Society of North America
- Secretary-Treasurer, Society of Chairmen of Academic Radiology Departments
- Scientific Program Committee, Association of University Radiologists
- Ad Hoc Committees on Publications, Annual Meeting Support and Standards for Responsible Conduct of Research, Association of University Radiologists
- Finance Committee, Association of University Radiologists
- Program Committee, Society of Cardiovascular and Interventional Radiology
- Research Committee, Society of Cardiovascular and Interventional Radiology
- Training Committee, Society of Cardiovascular and Interventional Radiology
- Council Affairs Committee, American Heart Association
- Committee on Transcatheter Therapy of Peripheral Vascular Disease, Council on Cardiovascular Radiology, American Heart Association
- Subcommittee on Peripheral Vascular Interventions, Society for Cardiac Angiography and Interventions
- Public Information Advisory Board, Radiological Society of North America
- Scientific Advisor, RSNA Research and Education Fund, Radiological Society of North America
- Cardiac Catheterization Committee, American College of Cardiology
- Executive Board, Philadelphia Roentgen Ray Society

- Public Relations and Marketing Committee, Pennsylvania Radiologic Society
- Committee on Diagnostic Radiology, Pennsylvania Radiologic Society
- Ad Hoc Committee on Angiography/Intervention, Pennsylvania Radiologic Society
- Councillor, Society of Chairmen of Academic Radiology Departments
- Associate Editor, *Radiology*
- Associate Editor, *Cardiovascular and Interventional Radiology*
- Editorial Executive Committee, *Investigative Radiology*
- Editorial Board, *American Journal of Cardiac Imaging*
- Editorial Board, *Clinical Imaging*
- Editorial Board, *Current Diagnosis*
- Editorial Board, *Journal of Vascular and Interventional Radiology*
- Reviewer, *New England Journal of Medicine*
- Reviewer, *Catheterization and Cardiovascular Diagnosis*
- ✧ Fourth Annual Sanford Bluestein Lecturer, Department of Radiology, Yale University School of Medicine

#### **ESMOND M. MAPP, M.D.**

- Vice President, Radiology Centennial Inc.
- Chairman, Membership Committee, Pennsylvania Radiological Society
- Consultant, Radiologic Devices Panel, Center for Devices and Radiologic Health, Food and Drug Administration (FDA)
- Consultant, National Naval Medical Center
- Secretary, Pennsylvania Radiological Society
- Executive Committee and Member, Intersociety Commission, American College of Radiology
- Alternate Councilor, Philadelphia Roentgen Ray Society
- Alternate Councilor, American College of Radiology, Pennsylvania Radiological Society
- Member, Executive Committee, Pennsylvania Radiological Society
- Member, Committee on Manpower, American College of Radiology
- Member, Blue Ribbon Committee, Philadelphia Roentgen Ray Society

#### **MARK M. MISHKIN, M.D.**

- Chairman, Neuroradiology Section, Written Examination, American Board of Radiology
- President-elect, Eastern Radiological Society
- Executive Committee Member, Eastern Radiological Society
- Chairman, Committee on Drugs and Contrast Media, American College of Radiology
- Executive Committee, Board of Trustees, American Registry of Pathology, Armed Forces Institute of Pathology
- Medical Director, American College of Radiology Institute
- Member, Commission on Education, American College of Radiology
- Member, Radiopharmaceutical Drugs Advisory Committee, Food and Drug Administration (FDA)
- Reviewer, *Cancer*

#### **DONALD G. MITCHELL, M.D.**

- Vice President, Greater Delaware Valley MRI Society
- Fellowship, Council on Cardiovascular Radiology, American Heart Association
- Moderator, Cardiac MRI Scientific Session, Radiologic Society of North America 76th Annual Meeting

- Chairman, Technical Exhibits Committee, Society for Magnetic Resonance Imaging
- Member, Doppler/Vascular Section, American Institute of Ultrasound in Medicine
- Faculty, Educational Program (marrow MRI), Society for Magnetic Resonance in Medicine Conference
- Member, Doppler/Vascular Section, American Institute of Ultrasound in Medicine
- Member, Magnetic Resonance Core Curriculum Committee, Society for Magnetic Resonance in Medicine
- Abstract Reviewer, 1990 Annual Convention of the American Institute of Ultrasound in Medicine
- Editorial Board and Reviewer, *American Journal of Roentgenology*
- Editorial Board, *Journal of Magnetic Resonance Imaging*
- Guest Editor, *CRC Critical Reviews in Diagnostic Imaging*
- Reviewer, *Radiology*
- Reviewer, *RadioGraphics*
- ✧ Jefferson Radiology Research Award paper, "Parenchymal Versus Reticuloendothelial Iron Overload in the Liver: Distinction with MR Imaging" (Siegelman ES, Mitchell DG, et al)
- ✧ 1990 Editor's Recognition Award with Special Distinction, *Radiology*

#### **LAURENCE NEEDLEMAN, M.D.**

- Vice President, Greater Delaware Valley Ultrasound Society
- Member, Joint Review Committee for Education of Cardiovascular Technologists (representative of American College of Radiology)
- Member, Convention Planning Committee, American Institute of Ultrasound in Medicine
- Abstract Reviewer, American Heart Association Annual Meeting
- Reviewer, *Radiology*

#### **VIJAY M. RAO, M.D.**

- Ad Hoc Member, Research Manpower Committee-NHLBI, National Institutes of Health
- Reviewer, Veterans Administration Grants, (MRI-Immunology Section)
- Reviewer, *American Journal of Neuroradiology*
- Reviewer, *Journal of Cancer Research*
- ✧ Jefferson Radiology Research Award paper, "Parenchymal Versus Reticuloendothelial Iron Overload in the Liver: Distinction with MR Imaging" (Siegelman ES, Mitchell DG, et al)

#### **MATTHEW D. RIFKIN, M.D.**

- Chairman, Endocavitary Review Subcommittee, American Institute of Ultrasound in Medicine
- Chairman, Lower Urinary Tract Review Subcommittee, American Institute of Ultrasound in Medicine
- Chairman, Scientific Program Committee, Delaware Valley MRI Society
- Member, Refresher Course Committee, Radiological Society of North America
- Member, Annual Convention Program Committee, American Institute of Ultrasound in Medicine
- Member, Ultrasound Education Subcommittee, American College of Radiology
- Member, Ultrasound Commission, American College of Radiology
- Member, Executive Committee, Delaware Valley Magnetic Resonance Imaging Society
- Member, Program Committee (CPC), American Institute of Ultrasound in Medicine Annual Meeting

- Abstracts Reviewer, Society of Magnetic Resonance Imaging in Medicine Annual Meeting
- Abstracts Reviewer, American Institute of Ultrasound in Medicine Annual Meeting
- Editorial Board, *Journal of Ultrasound in Medicine*
- Editorial Board, *Uroradiology*
- Editorial Board, *Diagnostic Imaging*
- Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Investigative Radiology*
- Reviewer, *Journal Clinical Ultrasound*
- Reviewer, *Journal of the American Medical Association*
- Reviewer, *Clinical Imaging*
- Reviewer, *Arthritis and Rheumatism*
- Reviewer, *RadioGraphics*
- Reviewer, *Journal of Magnetic Resonance Imaging*
- Consulting Reviewer, *Journal of Urology*
- Consulting Reviewer, *Journal of Computer Assisted Tomography*
- ✧ Jefferson Radiology Research Award paper, "Parenchymal Versus Reticuloendothelial Iron Overload in the Liver: Distinction with MR Imaging" (Siegelman ES, Mitchell DG, et al)

#### **GARY S. SHABER, M.D.**

- Consultant, National Board of Medical Examiners
- Reviewer, *Radiology*

#### **MARCELLE J. SHAPIRO, M.D.**

- Co-chairperson, Executive Committee, Philadelphia Angiography and Interventional Radiology Society
- Executive Committee, Medical Alumni Society of the University of Pennsylvania School of Medicine
- Member, Patient Information Brochure Committee, Society of Cardiovascular and Interventional Radiology
- Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Investigative Radiology*
- Reviewer, *Journal of Interventional Radiology*

#### **PAUL W. SPIRN, M.D.**

- Member, Committee to Evaluate Levels of Training, Society of Thoracic Radiology
- Program Committee, Philadelphia Roentgen Ray Society
- Reviewer, *Radiology* (Thoracic)

#### **ROBERT M. STEINER, M.D.**

- Chairman, Training and Standards Committee, Society of Thoracic Radiology
- Abstract Reviewer, Annual Meeting 1991, American Heart Association
- Member, Board of Directors, North American Society of Cardiac Radiology
- Member, Committee on Diagnostic Radiology, Pennsylvania Radiologic Society
- Member, Scientific Exhibits Committee, Pennsylvania Radiologic Society

- Secretary, Philadelphia Roentgen Ray Society
- Member Executive Committee, Philadelphia Roentgen Ray Society
- Member, Scientific Exhibits Committee, Radiological Society of North America
- Abstract Reviewer, Society of Magnetic Resonance Imaging in Medicine
- Editorial Board, *American Journal of Cardiac Imaging*
- Editorial Board, *Heart and Vessels*
- Reviewer, *American Journal of Roentgenology*
- Reviewer and Abstractor, *Radiology*
- ✧ Jefferson Radiology Research Award paper, "Parenchymal Versus Reticuloendothelial Iron Overload in the Liver: Distinction with MR Imaging." (Siegelman ES, Mitchell DG, et al)
- ✧ First Prize for Best Paper, Society of Computed Tomography Conference, "Phase Contrast Imaging in Aortic Dissection."

#### KEVIN L. SULLIVAN, M.D.

- Program Committee, Philadelphia Angio/Interventional Society
- Reviewer, *Radiology*
- Reviewer, *Journal of Magnetic Resonance Imaging*

#### SIMON VINITSKI, Ph.D.

- Member, Executive Committee, Center of Excellence in Biomedical Engineering
- Scientific Committee Member, Annual Meeting of the Society of Nuclear Medicine
- Session Chair, Fast Imaging, Society of Magnetic Resonance Imaging Ninth Annual Meeting
- Reviewer, *Medical Physics*
- Reviewer, *Journal of Magnetic Resonance Imaging*
- ✧ External Examiner, Doctor of Philosophy Degree, Department of Biophysics, University of Pennsylvania; Thesis title "Estimation of Myocardial Perfusion Using Deuterium Nuclear Magnetic Resonance" by Matthew Dunlap Mitchell

#### RICHARD J. WECHSLER, M.D.

- Acting Secretary, Philadelphia Roentgen Ray Society
- Chairman, Program Committee, Philadelphia Roentgen Ray Society
- Committee Member, Continuing Education for the Pennsylvania Radiological Society

#### ELAINE WOLK, M.D.

- Reviewer, American College of Radiology, Practice Accreditation Program Subcommittee - American College of Radiology Accreditation Program

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## Appendix A

### FUNDED RESEARCH

# ACTIVE GRANT SUMMARY

Revised 8/9/91

(Report reflects current year of award period)

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	PERSONNEL COSTS	OTHER DIRECT COSTS	TOTAL DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Boone, J. (#080-08290)	Automated Equalization In DSA Using Filter Wheels	Whitaker Foundation	11/1/90-10/31/91	36,094	23,500	59,594	8,319	67,913
Consigny, M (#080-08285)	Characterization of Smooth Muscle Cell Mitogens Released From Arteries After Angioplasty	AHA	7/1/90-6/30/91	12,405	7,245	19,650	0	19,650
Goldberg, B. (Acct. # to be Assigned)	Developing of Ultrasonic Tissue Characterization Methods (Sub-contract through Drexel Univ.)	NCI	9/30/90-8/31/91	13,259	3,000	16,259	10,406	26,665
Goldberg, B. (#080-03123)	Effects of Prenatal Ultrasound on Post-natal Development	NICHID	8/1/90-7/31/91	76,092	115,549	191,641	59,884	251,525

# ACTIVE GRANT SUMMARY

Revised 8/9/91

(Report reflects current year of award period)

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PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	PERSONNEL COSTS	OTHER DIRECT COSTS	TOTAL DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Goldberg, B. (#080-05233)	Ultrasonic Scattering Studies in Tissue Characterization (Subcontract through Drexel Univ.)	NHLBI	7/1/90-6/30/91	12,091	1,000	13,091	8,379	21,470
Goldberg, B. (#080-05227)	Ultrasound Doppler/B-Mode Breast Scanner	NIH	9/1/89-8/31/91	17,680	2,433	20,113	11,846	31,959
Mishkin, M. (#080-05133) Assigned)	Study of Non-Ionic Reactions: Can Sterioids Modify? (Subcontract through U. of Ca., San Diego)	NIH	2/1/91-1/31/92	40,038	817	40,855	26,147	67,002
Needleman, L. (#080-03354)	Doppler Screening for Pregnancy-Induced Hypertension	NICHHD	6/1/90-5/31/91	108,683	50,939	159,622	101,869	261,491

# ACTIVE GRANT SUMMARY

Revised 8/9/91

(Report reflects current year of award period)

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	PERSONNEL COSTS	OTHER DIRECT COSTS	TOTAL DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Rifkin, M. (#080-03374)	National Collaborative Diagnostic Imaging Project	NCI	9/1/90-7/31/91	31,249	6,172	37,421	20,175	57,596
Tasciyan, T. (#080-08291)	Contrast in MRI Angiography: Optimization With Respect to Rapid Pulse Sequences	Whitaker Foundation	12/1/90-11/30/91	40,975	11,261	52,236	9,095	61,331
Vinitski, S. (#080-01403)	MR Imaging of Pulmonary Emboli	Mary Smith Trust	4/1/91-3/31/92	29,789	15,995	45,784	4,579	50,363
TOTAL FUNDED ACTIVITY								
				418,355	237,911	656,266	260,699	916,965

# ACTIVE GRANT SUMMARY

Revised 8/9/91

(Report reflects entire award period)

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	PERSONNEL COSTS	OTHER DIRECT COSTS	TOTAL DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Boone, J. (#080-08290)	Automated Equalization In DSA Using Filter Wheels	Whitaker Foundation	11/1/90-10/31/92	73,993	29,000	102,993	16,999	119,992
Consigny, M (#080-08285)	Characterization of Smooth Muscle Cell Mitogens Released From Arteries After Angioplasty	AHA	7/1/90-6/30/91	12,405	7,245	19,650	0	19,650
Goldberg, B. (Acct # to be Assigned)	Developing of Ultrasonic Tissue Characterization Methods (Sub-contract through Drexel Univ.)	NCI	9/30/90-8/31/93	13,259	3,000	16,259	10,406	26,665
Goldberg, B. (#080-03123)	Effects of Prenatal Ultrasound on Post-natal Development	NICHD	4/1/86-7/31/93	460,654	491,720	952,374	358,099	1,310,473

# ACTIVE GRANT SUMMARY

Revised 8/9/91

(Report reflects entire award period)

pg. 2

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	PERSONNEL COSTS	OTHER DIRECT COSTS	TOTAL DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Goldberg, B. (#080-05233)	Ultrasonic Scattering Studies in Tissue Characterization (Sub-contract through Drexel Univ.)	NHLBI	3/1/82-6/30/92	53,322	6,868	60,190	37,737	97,927
Goldberg, B. (#080-05227)	Ultrasound Doppler/B-Mode Breast Scanner (Sub-contract through Daltex)	NIH	4/1/87-8/31/91	42,073	4,433	46,506	27,945	74,451
Mishkin, M. (#080-05133)	Study of Non-Ionic Reactions: Can Steriods Modify? (Subcontract through U. of Ca., San Diego)	NIH	2/1/88-1/31/92	66,587	1,078	67,665	41,647	109,312
Needleman, L. (#080-03354)	Doppler Screening for Pregnancy-Induced Hypertension	NICHD	7/1/88-5/31/93	567,923	53,686	621,609	375,364	996,973



ACTIVE GRANT SUMMARY

Revised 8/9/91

(Report reflects entire award period)

PRINCIPAL INVESTIGATOR	TITLE OF PROJECT	FUNDING SOURCE	FUNDING DATES	PERSONNEL COSTS	OTHER DIRECT COSTS	TOTAL DIRECT COSTS	INDIRECT COSTS	TOTAL COSTS FUNDED
Rifkin, M. (#080-03374)	National Collaborative Diagnostic Imaging Project	NCI	9/4/87-7/31/91	99,982	53,200	153,182	63,662	216,844
Tasciyan, T. (#080-08291)	Contrast in MRI Angiography: Optimization With Respect to Rapid Pulse Sequences	Whitaker Foundation	12/1/90-11/30/93	129,177	20,261	149,438	28,535	177,973
Vinitski, S. (#080-01403)	MR Imaging of Pulmonary Emboli	Mary Smith Trust	4/1/91-3/31/92	29,789	15,995	45,784	4,578	50,362
TOTAL FUNDED ACTIVITY								
				1,549,164	686,486	2,235,650	964,972	3,200,622