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Department of Radiology-Annual Report-July 1, 1991 to June 30, 1992

David C. Levin

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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
Breast Imaging
Body CT
Neuroradiology/ENT Radiology
Cardiovascular/Interventional Radiology
Ultrasound
Magnetic Resonance Imaging
Pediatric Radiology
Physiological Research
Radiological Physics
Outcomes Research

Robert M. Steiner, M.D.
Stephen A. Feig, M.D.
Richard J. Wechsler, M.D.
Carlos F. Gonzalez, M.D.
Vijay M. Rao, M.D.
Geoffrey A. Gardiner, Jr., M.D.
Barry B. Goldberg, M.D.
Donald G. Mitchell, M.D.
George W. Gross, M.D.
P. Macke Consigny, Ph.D.
Simon Vinitiski, Ph.D.
Talin A. Tasciy, Ph.D.
Flemming Forsberg, Ph.D.
Robert Harford, Ph.D.

DEPARTMENTAL COMMITTEES AND CHAIRMEN

Advisory Committee
Education Committee
Research Committee
Residency Selection Committee
Quality Assurance Committee
Computer Committee

Alfred B. Kurtz, M.D.
Vijay M. Rao, M.D.
Barry B. Goldberg, M.D.
George W. Gross, M.D.
Paul W. Spirn, M.D.
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.
David Karasick, M.D.
Alfred B. Kurtz, M.D.
Vijay M. Rao, M.D.
Robert M. Steiner, M.D.
Richard J. Wechsler, M.D.
Simon Vinitski, Ph.D.

Research Professor

Gary S. Shaber, M.D.

Clinical Professors

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

Associate Professors

Geoffrey A. Gardiner, Jr., M.D.
George W. Gross, M.D.
Anna S. Lev-Toaff, M.D.
Donald G. Mitchell, M.D.
Laurence Needleman, M.D.

Clinical Associate Professor

Paul W. Spirn, M.D.

Research Associate Professors

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

Research Assistant Professor

Ji-Bin Liu, M.D.

Assistant Professors

Archibald A. Alexander, M.D.
Joseph Bonn, M.D.
Emily F. Conant, M.D.
Diane M. Deely, M.D.
Rick I. Feld, M.D.
Adam E. Flanders, M.D.
Flemming Forsberg, Ph.D.
Ethan J. Halpern, M.D.
Raymond M. Montecalvo, M.D.
Eric Outwater, M.D.
Catherine W. Piccoli, M.D.
Bhaskara K. Rao, M.D.
Ana Salazar, M.D.
Mark E. Schweitzer, M.D.
Marcelle J. Shapiro, M.D.
Kevin L. Sullivan, M.D.
Talin A. Tasciyan, Ph.D.

Clinical Assistant Professors

David P. Friedman, M.D.
Levon Nazarian, M.D.
Sharon R. Segal, D.O.
Lisa M. Tartaglino, M.D.
Terri Tuckman, M.D.
Elaine Wolk, 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.

Professors Emeriti

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

Honorary Professor

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

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

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

Ralph A. Carabasi, M.D., 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

Adjoint 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)  
Melvin Tecotzky, Ph.D. (Agfa-Gevaert)

Adjoint Assistant Professors
Kawan Soetanto, D.Sc., M.D. (Drexel University)  
Harry Zegel, M.D. (St. Agnes Hospital)

Adjoint Clinical Assistant Professor
S. Bruce Greenberg, M.D. (St. Christopher's Hospital for Children)
**RADIOLOGY RESIDENTS**  
1992-1993

Jeannette G. Greer, M.D., Chief Resident  
James T. Tsatalis, M.D., Chief Resident

### FIRST YEAR RESIDENTS
- Adam R. Fisher, M.D.  
- Charles E. Martin, M.D.  
- Timothy J. Murphy, M.D.  
- Daniel M. Radack, M.D.  
- Gautham P. Reddy, M.D.  
- Charul P. Saini, M.D.

### SECOND YEAR RESIDENTS
- Eric W. Emig, M.D.  
- Victoria Kong Endo, M.D.  
- Robert E. Epstein, M.D.  
- William B. Morrison, M.D.

### THIRD YEAR RESIDENTS
- Jeannette G. Greer, M.D.  
- Bruce E. Hall, M.D.  
- Joseph F. Mammone, M.D.  
- James T. Tsatalis, M.D.  
- Corinne B. Winston, M.D.

### FOURTH YEAR RESIDENTS
- Daniel M. Golding, M.D.  
- Eric A. Huettl, M.D.  
- Rajesh Patel, M.D.  
- Robert J. Rapoport, M.D.  
- Evan S. Siegelman, M.D.

### RADIOLOGY FELLOWS

#### MRI
- Fred H. Schlesinger, M.D.

#### ULTRASOUND/CT/MRI
- Araidne M. Bach, M.D.  
- Ian Boiskin, M.D.  
- Mark O. Cosentino, M.D. *  
- Mehul B. Desai, M.D.  
- David B. Leukhardt, M.D.  
- Jay E. Lerman, M.D. *  
- Ruth E. Moran, 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. *  
- Jean M. Torrisi, M.D.  
- Amy B. Whitley, M.D.

* through 8/31/92

#### NEURORADIOLOGY/ENT
- Ricardo Eng, M.D.  
- Marina D. Liem, M.D.  
- William S. Millar, M.D.  
- Susan Rebsaman, M.D.

#### CARDIOVASCULAR/INTERVENTIONAL
- Vikram Dravid, M.D.  
- David J. Eschelman, M.D.  
- David M. Hovsepian, M.D.  
- Charles S. Sutton, M.D.

#### CHEST
- Rosita M. Shah, M.D.

#### BREAST IMAGING
- George A. Autz, M.D.
STATE OF THE DEPARTMENT
David C. Levin, M.D.

As requested by the Dean, this year's report will be somewhat abbreviated and will include the following sections: (1) Clinical programs, (2) Clinical weaknesses, (3) Research programs, (4) Research weaknesses, (5) Extramural funding efforts, (6) Interdepartmental activities, (7) Planned new programs in clinical practice, (8) Planned new programs in research, (9) Goals, (10) Issues for the College.

1. CLINICAL PROGRAMS

The department experienced continued growth in procedure volume, with a 7% increase compared with the previous year. Total procedure volume during 1991-92 was 222,000 examinations. Growth was particularly strong in cardiovascular/interventional radiology, ENT CT and MRI, body CT, pediatric radiology, neuro and body MRI, and mammography. We continued to recruit new referral sources and were successful in several areas. In ultrasound, we opened a beautiful new outpatient facility in the Clinical Office Building (COB) that is now handling almost 40 ultrasound examinations per day, featuring regular scheduling and rapid turnaround of patients. We opened a new fluoroscopic unit in the GI endoscopy suite on Main 4. The body CT scanner on Gibbon 3 was updated with the Highlight Advantage package, allowing faster patient throughput and higher resolution. An independent physician's console for image processing was also added on this unit. Badly needed laser imagers were added to the CT and MRI units on Main 10 and Gibbon 3. We began using our new digital dictation system, which will provide us considerable management efficiencies and (soon) a telephone call-in feature. A new reading room was constructed in Core 2, giving us expanded film reading space and helping smooth the process of reading orthopedic, trauma and emergency room films. This particular development has been greeted enthusiastically by the clinical services involved. A number of new procedures or expanded clinical services have been provided during the past year, including the following:

- Transjugular intrahepatic portosystemic shunts (TIPS).
- Percutaneous placement of vascular access lines.
- Rapid expansion of our prostate biopsy service.
- Ultrasound-guided compression of pseudoaneurysms.
- Ultrasound evaluation of upper extremity venous disease, particularly in patients with indwelling central lines.
- Percutaneous bone biopsy.
- Large scale implementation of the fast spin echo (FSE) pulse sequence in MRI, which is now being used to study a variety of clinical conditions.
- Celiac plexus blocks under CT guidance.
- CT imaging of the foot in the sagittal plane.
- CT-guided hookwire localization for thoracoscopic resection.

Every one of the above procedures has resulted in better, cheaper or less invasive care of patients, and we are very pleased to be at the forefront of developments like these.

2. CLINICAL WEAKNESSES

Clinical weaknesses exist in several areas: (1) Our biggest problem continues to be inadequate film library space on Gibbon 3. This seriously hampers our ability to get all cases read
promptly. (2) The Cardiovascular/Interventional Radiology (CVIR) division continues to expand very rapidly. The two procedure rooms utilized on Gibbon 5 are no longer sufficient. A third procedure room is needed, preferably in what is now cardiology space. (3) We do not have capability for transmitting images from one part of the hospital to another via a picture archiving and communication system (PACS). Other hospitals are purchasing such systems and we need to look into this closely. (4) Backlogs are again building for MRI, both on Main 10 and in the COB. (5) Progress on a new vascular disease center has been slow and Jefferson still does not have a well developed center in this important area of medical practice. We also need better imaging capability for the vascular operating rooms. (6) We lack a reading room in the emergency department and need to provide the capability for on-line reading of films in that area by radiology residents. (7) Our undicted case volume remains higher than we'd like it to be. (8) After our digital dictation system was installed, we hoped to rapidly institute a telephone call-in feature which would be of great convenience to housestaff and referring physicians. Due to a variety of unforeseen circumstances, this call-in feature is not yet operational.

3. RESEARCH PROGRAMS

I'm pleased to report that two of our faculty members received two of the most prestigious research awards available to academic radiologists this past year. Dr. Don Mitchell received the Herbert Stauffer Award of the Association of University Radiologists for the best basic science paper of the year published in the AUR's journal INVESTIGATIVE RADIOLOGY. The title of Dr. Mitchell's award-winning paper was "Chemical Shift Phase-Difference and Suppression Magnetic Resonance Imaging Techniques in Animals, Phantoms and Humans". Drs. Simon Vinitski, Macke Consigny, Matthew Rifkin and Ms. Saundra Ehrlich were other faculty co-investigators. In addition, Dr. Adam Flanders was selected as an RSNA Scholar, an award for which there is strong nationwide competition and which is presented to only 4-5 young academic radiologists each year. Dr. Flanders won for his project entitled "Uses of Magnetic Resonance Imaging in Assessing Severity and Forecasting Outcomes of Spinal Cord Injury". Faculty co-investigators were Drs. David Friedman and Robert Harford. We are all very proud of their accomplishments and the fact that two prestigious awards like these were presented to department faculty members in the same year.

There is abundant other evidence of departmental research productivity. At the 1991 RSNA meeting (the largest radiology meeting each year), our department had no fewer than 30 presentations. Twenty of these were original scientific papers and ten others were symposia, courses or exhibits. At the annual meeting of the American Institute of Ultrasound in Medicine (AIUM) our ultrasound division had a total of 18 presentations on a variety of ultrasound-related subjects. Jefferson faculty were widely represented at a number of other large radiology meetings around the country as well.

During the 1991-92 academic year, our department had in force at various times a total of $939,422 in NIH or foundation support. Total direct costs were $667,357 and indirect was $272,065. The principal investigators on these grants were Drs. John Boone, Macke Consigny, Barry Goldberg, Mark Mishkin, Don Mitchell, Larry Needleman, Talin Tasciyan, and Simon Vinitski. The titles of their projects and the amounts funded are shown in Appendix A.

In addition we had almost $1,000,000 in industrial grant support for 17 different projects. In a department like ours, a large number of valuable projects are carried out each year with this kind of industrial support or funding by departmental sources. Some examples were the following: Dr. Geoffrey Gardiner and his colleagues in the CVIR division continued their work on a multi-center registry of patients who have undergone percutaneous interventional procedures for peripheral vascular disease. Over 1000 cases have now been registered, representing the largest registry of its type in this country. Dr. Kevin Sullivan studied the effect
of angioplasty on patency of dialysis access grafts, and also the use of transhepatic laser lithotripsy of gallstones. Our director of physiological research, Dr. P. Macke Consigny, studied the effect of balloon angioplasty on smooth muscle cell mitogen activity. Drs. Barry Goldberg, Rick Feld, Ji-Bin Liu and others in the ultrasound division continued their fascinating work with endoluminal ultrasound, using catheter-mounted miniaturized transducers to study the lower esophageal sphincter and other organs. Dr. Alfred Kurtz worked on determining whether detection of the yolk sac in the first trimester can be used to predict the outcome of pregnancy. Dr. Don Mitchell and his colleagues in the MRI division studied a variety of aspects of MR imaging of the liver, other technical aspects of abdominal MRI, and the use of MRI contrast agents. Dr. Simon Vinitski continued his record of outstanding productivity with a large group of abstracts relating to pulse sequences and other technical aspects of MRI. Dr. Robert Harford and I and several other faculty members collaborated with Pennsylvania Blue Shield on studies of utilization of imaging technology, image quality analysis, and costs of imaging procedures. Dr. Vijay Rao continued her work on MRI assessment of TMJ disease and also studied the use of certain new pulse sequences in head and neck MRI. Drs. Mark Schweitzer and David Karasick have become an excellent team in musculoskeletal imaging and have studied a wide range of imaging findings in orthopaedic diseases, including MRI of the wrist, knee and craniovertebral junction, as well as plain film and tomographic analysis of the postoperative spine.

These are just a few of the many projects carried out by investigators in our department. A complete list of published papers, abstracts and presentations can be found later in this annual report. All told, I am very proud of our research accomplishments. Although reliable statistics are not available, it seems clear that we are now in the top rank of research radiology departments in the country, and we intend to keep improving.

4. RESEARCH WEAKNESSES

While our department has become increasingly productive in research over the past few years, we still have some problems to surmount in this sphere. (1) The biggest problem is a shortage of time. As a very busy service department which is growing not only in sheer numbers of procedures but in complexity as well, clinical faculty members have little or (in the case of junior faculty) no time to seek federal grant funding. We do not have the luxury, as do the basic science and some other clinical departments, of large blocs of faculty time funded by the institution with which to write grant proposals. We need more help from the medical school in providing personnel who can coordinate the writing and organizing of grant proposals - such individuals would serve as "physician extenders". The demands of clinical service, administration, teaching, and ongoing clinical research projects make this obligatory if we are to see an increase in grant-writing activity by faculty physicians in the department. (2) Our Ph.D. scientists have been active in seeking outside grant support, but I would like to see the level of this activity increase. (3) Research space is always at a premium and one of our problems is that we are short of such space. Several of our Ph.D. faculty members do not have adequate laboratory space, and this needs to be addressed. (4) Finally, we were sorry to lose Dr. John Boone, director of radiological imaging physics, who recently departed to the University of California, Davis to be closer to his and his wife's families. We have had a difficult time replacing him, and the position is still open at the moment despite more than a year's worth of recruiting efforts.
I am pleased with the stepped-up activity of our department aimed at securing outside grant funding. Since the beginning of 1992, radiology investigators have submitted nine major grant proposals which are still pending. These are as follows:

- P. Macke Consigny, Ph. D. submitted an NIH grant on arterial factors controlling post-angioplasty restenosis.
- In conjunction with the Department of Rehabilitation Medicine, Drs. Adam Flanders, David Friedman and Robert Harford submitted a proposal to NIH on the use of MRI to predict clinical outcomes in spinal cord injury.
- As part of a consortium with the University of Toronto, Dr. Barry Goldberg submitted a proposal to NIH on the use of intravenous contrast in ultrasound imaging.
- In conjunction with the Division of Nephrology, Dr. Kevin Sullivan submitted a proposal to NIH on the use of interventional radiologic techniques to extend the patency of hemodialysis access fistulas.
- Dr. Alfred Kurtz submitted a proposal to NIH on the detection and staging of ovarian cancer, as part of the Radiologic Diagnostic Oncology Group (RDOG). We just received word that this proposal was given an excellent priority score.
- Dr. Stephen Feig submitted a proposal to NIH on the clinical evaluation of digital mammography, in response to an NCI program announcement on the development of a national digital mammography development group. This is part of a consortium with the University of Toronto and several other institutions.
- Dr. Archie Alexander was co-investigator on an NCI proposal from the Jefferson Cancer Institute on intravesical gene therapy for bladder cancer.
- Drs. Archie Alexander, Don Mitchell and Catherine Piccoli were co-investigators on a grant submitted by the Division of Colorectal Surgery to NIH on contrast enhanced color Doppler transrectal ultrasound, CT and MRI in the diagnosis and staging of rectal cancer. A site visit for this proposal has been scheduled for the near future.
- A large grant was submitted by Dr. Carlo Croce as a SPORE on prostate cancer. Drs. Barry Goldberg, Archie Alexander and Don Mitchell head project 7 of this SPORE, dealing with contrast-enhanced ultrasound and MRI of the prostate. Dr. Mitchell heads Core 4, which is the imaging core of this proposal.

In addition, we have received advance word that the NCI will probably be issuing an RFA, also as part of the RDOG trial, on the diagnosis of breast cancer utilizing imaging-guided stereotactic core biopsy. Assuming we receive approval from the hospital for purchase of this equipment, Dr. Stephen Feig will be submitting a proposal, in conjunction with Dr. Robert Harford.

In terms of future grant submissions in radiology, it appears to me that the best potential exists in breast cancer diagnosis, future RDOG announcements, the efficacy of ultrasound and MRI contrast agents in diagnosing tumors, and outcomes research as applied to radiology.

As indicated earlier another important source of grant funding for a department like ours is private industry. During the current year, department investigators have obtained almost
$1,000,000 in support for 17 different projects. The major areas include development of new contrast agents and the development of a multicenter registry of peripheral vascular interventions. Both these areas remain promising for future funding.

6. INTERDEPARTMENTAL ACTIVITY

Our department interacts with a large number of other departments and divisions on joint research projects. These include pulmonary medicine, rheumatology, orthopedic surgery, nephrology, urology, gastroenterology, pediatrics, general surgery, breast surgery, colorectal surgery, vascular surgery, neurology, neurosurgery, rehabilitation medicine, otolaryngology, obstetrics/gynecology, etc. Also this past year we begun collaborating with Dr. Carlo Croce and his group in the department of microbiology and immunology. We have already submitted a major proposal through them as part of a SPORE grant on prostate cancer and have had discussions about future joint projects. This represents an interesting collaboration between basic scientists and clinical researchers and we look forward to more of these in the future.

7. PLANNED NEW PROGRAMS - CLINICAL

In addition to expanding the new services outlined in Section 1, we plan to introduce the following this year:

- A new helical GE CT scanner will be installed in the COB and the CT scanner on Gibbon 3 will be completely upgraded as another helical unit. Helical, or "spiral", CT scanning offers a number of advantages and we are looking forward to being one of the first major teaching hospitals in Philadelphia to have this capability. The presence of a CT scanner in the COB will give us outpatient capability there in all three primary cross-sectional imaging modalities (ultrasound, CT, MRI).

- We hope to install a stereotactic breast core biopsy device in the Breast Imaging Center (BIC) in the near future. This is a very new technology which should greatly facilitate breast biopsies, while reducing the cost and degree of invasiveness of these procedures. Also in the BIC, we hope to begin a screening mammography program.

- New radiographic equipment will be installed in the urology endoscopy suite on Thompson 5 and the new JOA offices in Walnut Towers.

- We expect to introduce the telephone call-in feature of our digital dictation system within the near future. This will allow housestaff and referring physicians to dial directly in to our dictation system from any hospital or outside phone and receive verbatim the latest dictated reports on their patients.

- As part of our purchase agreements with GE for the new CT scanner, we will be obtaining two 3-D reconstruction packages, which will allow us to provide 3-D reconstruction of certain cases of trauma and head and neck, spine, and vascular diseases.

- Dr. Barry Goldberg and his colleagues in the ultrasound division have been among the leaders in developing endoluminal ultrasound, and we intend to expand this program.

- Magnetic resonance angiography and cardiac imaging have become a reality and we intend to become much more active in this area. Many MR angiography studies are now of such high quality that catheter angiography can be avoided altogether.
8. PLANNED NEW PROGRAMS - RESEARCH

Our plans for extramural funded research have been discussed above in Section 5. Aside from those, a number of clinical studies are envisioned. There are too many to list them all, but included among them are the following:

- Long-term follow-up of patients undergoing TIPS and insertion of Palmaz stents (CVIR).

- Prospective comparison of the bird's nest and titanium Greenfield inferior vena cava filters (CVIR).

- Long-term follow-up of fallopian tube recanalization in an unselected population (CVIR).

- Clinical results of use of the Gianturco stent combined with intraluminal iridium-192 therapy for malignant biliary strictures (CVIR).

- MRI in the assessment of severity and forecasting outcome of spinal cord injury (neuroradiology/ENT radiology).

- Assessment of image quality of MRI examinations by different providers in the Delaware Valley (neuroradiology/ENT radiology and MRI divisions, in conjunction with Pennsylvania Blue Shield).

- Development of an animal model to test efficacy of a tPA-urokinase hybrid for thrombolytic therapy of carotid occlusions (neuroradiology/ENT radiology).

- Efficacy of 4-quadrant transrectal prostate biopsy (ultrasound).

- Development of ultrasound contrast agents (ultrasound).

- Efficacy of stereotactic core breast biopsy (breast imaging).

- Non-surgical treatment of iatrogenic vascular injury by ultrasound-guided compression (ultrasound).

- Attenuation of ultrasound signals in the human placenta and other tissues (ultrasound).

- Re-endothelialization of arteries after angioplasty (CVIR and physiology).

- CT of breast prostheses (CT).

- Efficacy of abdominal CT following blunt trauma (CT).

- Use of 3-D reconstruction in assessment of vascular disease by CT (CT).

- Studies of utilization, quality, and costs of imaging procedures (health services research).

- Effect of blood viscosity on flow patterns in sickle cell anemia (neuroradiology/ENT radiology).

- Use of fast spin echo and other new pulse sequences (MRI physics).
9. GOALS

Our overriding goal is to maintain excellence in all three of our major academic missions - clinical care of patients, research, and education.

In the clinical area, certain weaknesses were identified in section 2 of this report. A major goal is to deal effectively with the problems created by inadequate film library space, explosive growth in interventional radiology procedures, the need to develop better image transmission capability, an insidious increase in backlogs for MRI studies, the need to develop a vascular disease center, the lack of reading facilities in the emergency department, and the fact that some of our cases still go undictedated because of film pilferage or loss from the department. Our goal is to solve all of these problems and to continue providing high quality patient care, while at the same time minimizing operating costs. We will continue our efforts to use our personnel as efficiently as possible, to minimize service costs and the use of expensive drugs like low osmolar contrast agents, and to avoid adding more faculty radiologists to our roster for the time being.

In research, weaknesses have been identified in section 4 of this report. Our goal is increased efforts to secure both federal and industrial funding for our research activities. A better grant-writing infrastructure needs to be developed. I hope to see our Ph.D. scientists become more active in seeking outside grant support. Laboratory space needs to be enlarged and improved. In seeking industrial support, we will try to build in more overhead costs, although it is sometimes very difficult to convince commercial manufacturers of the need to do this.

In education, we will renew our efforts to maintain the excellence of our residency, fellowship, and continuing medical education programs. We have become somewhat concerned about a dropoff in the number of Jefferson medical students taking the General Radiology elective and in the number selecting radiology as a career choice. We have had many discussions about this in our Education Committee meetings and are committed to improving our medical student teaching. Specific plans for this are outlined in the accompanying report on teaching programs by Dr. Vijay Rao, Associate Chairman for Education.

10. ISSUES FOR THE COLLEGE

There are many challenges facing Jefferson practice plan physicians as a group. Major cutbacks in state funding are limiting the University's ability to provide clinical care and education at all levels. Limitations in physician reimbursement have been instituted and more will certainly follow. Managed care will inexorably increase and the practice plan must develop a coordinated effort to deal with this. Jefferson has a reputation for clinical excellence and we must use our skills to compete effectively and vigorously with the many other healthcare institutions in the Delaware Valley. All of us need to get actively involved in this process.

Several other specific issues are as follows:

- Jefferson has just instituted a self-insured malpractice liability program. This will require new administrative skills and active involvement by all practice plan physicians as we take full responsibility for our own performance in risk management. Some trials and tribulations are sure to occur and we must all work together collaboratively to surmount them.

- I hope it will be possible for the College to help clinical departments secure more grant funding by providing grant-writers or coordinators to these departments, or perhaps a grant-writing office in the College. This is sorely needed to help encourage grant
proposals from faculty members in clinical departments who have heavy clinical, administrative and teaching loads.

• I also hope it will be possible for the Department of Ophthalmology at Wills Eye Hospital to be more fully integrated within the University. It is a peculiar paradox that Jefferson's Department of Ophthalmology does not refer its patients to Jefferson's Department of Radiology for imaging studies. There are complex reasons for this which are not easily resolved. We have made strenuous efforts to try and build bridges to the physicians at the Wills Eye Hospital and I sincerely hope these will bear fruit during the coming year.
The high caliber educational programs for residents, students and fellows offered by our department continue to be a source of pride. It gives me great satisfaction to report that our residents and fellows find themselves highly competitive for desirable jobs in academic radiology and in community or private practice radiology.

A. Residency Program

Our residency program continues to enjoy the reputation of being one of the best programs in the country. Once again we received approximately 280 applications for six positions. We filled our six positions for July 1993 from the top 28 choices in the National Intern Resident Matching Program (NIRMP). An excellent group of six residents just joined us in July 1992 including three who graduated from the University of Pennsylvania, one from Georgetown Medical School, one from Jefferson Medical College and one resident who has completed a three-year residency in pediatrics at the Sinai Hospital of Baltimore.

Of the five graduating residents, three accepted staff positions in private practice groups, one is taking a fellowship in cardiovascular/interventional radiology at New England Deaconess Hospital, and one is staying with us in cardiovascular/interventional radiology for fellowship. It is gratifying to note the positive comments made by the residents in their year-end evaluations of the program and their high level of satisfaction with the education they are receiving. The core curriculum and the time spent in subspecialty rotations by the residents is constantly scrutinized and discussed at the monthly Education Committee meetings. In order to optimize resident training and radiology services for emergency room patients, a full-time rotation for the residents in the emergency room is being planned, effective July 1993. This is contingent on the availability of adequate reading space in the emergency room. Discussions are in progress with the hospital administration.

B. Teaching Programs for Medical Students

Our department again offered five elective courses to the junior and senior students which remained quite popular. Paul Spirn, M.D. has taken primary responsibility for the General Radiology elective and is devoting considerable effort to upgrading this course. By and large, the evaluations by the students for the courses were positive, but concerns were expressed by some regarding the General Radiology elective course because some students felt there wasn’t enough contact with the faculty. We are taking definitive steps to improve the faculty/student interaction in the coming year. The radiology residents are also going to more actively participate in student conferences. The General Radiology elective course will be even more structured and sub-groups will be smaller. The goal is to increase one-on-one contact of students with the faculty. Our Education Committee has perceived a need to provide early exposure to radiology for the medical students. Since radiology has advanced so rapidly in the past two decades, it is imperative that the radiologists become an integral part of the patient management team and teach students the most efficient and cost-effective diagnostic imaging work-up of patients at an early stage of their education. We are therefore exploring the possibility of incorporating radiology into the Introduction to Clinical Medicine Course for the sophomore class in the future. The radiology lectures for the freshman class were again well received as in the past year. We would like to see a greater number of Jefferson students pursuing radiology as their future career.
C. Training Programs for Fellows

Our fellowship programs also continued to enjoy another year of excellence. There is an ever-increasing number of extremely well qualified applicants for fellowships in all the areas offered by our department, including cardiovascular/interventional radiology, neuroradiology/ENT radiology, US/CT/MRI, dedicated ultrasound, body MRI, musculoskeletal radiology, thoracic radiology and breast imaging. Our newly-instituted, two-year neuroradiology/ENT fellowship combined with Children's Hospital of Philadelphia (CHOP) is off to a very good start.

Continuing Medical Education Programs

Once again, numerous CME courses were offered by our department this past year, although such activities tend to be somewhat of a drain on faculty time. The Twelfth Annual Leading Edge in Diagnostic Ultrasound Conference held in Atlantic City was a great success. In addition, the department offered close to 40 CME courses lasting from 2-5 days in diagnostic ultrasound applications.

The Fifth Annual Hodes Lecture in honor of Philip J. Hodes, M.D. was very successful. The guest speaker was Stanley Siegelman, M.D., Professor of Radiology, Johns Hopkins University School of Medicine, and editor of Radiology who gave an outstanding presentation on "Peer Review of Scientific Journals: Assassins and Zealots".

Radiology Grand Rounds, given biweekly, covered 15 topics of interest in all the radiology subspecialties and were very well received.

A course on statistics consisting of short presentations by Saundra Ehrlich, M.S. and Robert Harford, Ph.D. was incorporated into the bi-weekly research conferences. This course was also well received by the residents and faculty.

Honors and Awards

The A. Edward O'Hara award for excellence in teaching was presented by the residents to David Friedman, M.D. The recipient of the resident research award was Joseph Mammone, M.D. for his work on "Micromechanics of Bone Strength and Fracture".

Overall, I am quite pleased that teaching medical students, residents and fellows continued to be a priority for our staff this year in spite of increased clinical caseload and constant pressure to increase research productivity in an academic environment. We hope to make further strides in our medical student teaching programs in the coming year.
PUBLICATIONS

Journal Articles


86. Abstracts


218. **Books and Book Chapters**


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ARCHIE A. ALEXANDER, M.D.

October 3, 1991
Blue Ribbon Presentation, The Philadelphia Roentgen Ray Society, Philadelphia, PA
• "Neonatal neurosonography"

November 1, 1991
Simon Kramer Lecture Series, Thomas Jefferson University Hospital, Philadelphia, PA
• "Ultrasound guided I 131 radiation seed implantation for prostate carcinoma"

November 6, 1991
Soros Foundation Lecturer, Semmelweis University medical School, Budapest, Hungary
• "Endorectal ultrasound of normal and abnormal prostate/rectal ultrasonography"

November 7-8, 1991
Visiting Lecturer, Postgraduate Medical School, Budapest, Hungary
• "Transvaginal ultrasound 1992"
• "Professional and financial considerations"

November 11-12, 1991
Visiting Lecturer, Sopron County Hospital, Sopron, Hungary
• "Venous ultrasound evaluation for deep venous thrombosis"
• "Carotid ultrasound"
• "Prostate ultrasound"

November 13, 1991
Visiting Lecturer, Mescotz Pediatric Hospital, Mescotz, Hungary
• "Neonatal neurosonography"
Visiting Lecturer, DeBrecen Medical University, DeBrecen, Hungary
• "Venous ultrasonography"
• "Prostate ultrasound - overview"
• "Prostate cancer - role of ultrasound"
• "Transrectal ultrasound biopsy technique"
• "Rectal cancer evaluation"
• "Congenital CNS anomalies diagnosed by ultrasound"

March 5-6, 1992
Visiting Professor, Brooke Army Medical Center (BAMC) and Wilford Hall Medical Center, San Antonio, TX
• "Peripheral vascular ultrasound"
• "Carotid ultrasound"

April 9, 1992
Visiting Professor, Saint Mary Hospital, Langhorne, PA
• "Transrectal ultrasound of prostate"
April 24, 1992
Visiting Lecturer, Fourth Annual Spring Ultrasound Conference, Abingdon, VA
• "Ultrasound of the normal prostate"
• "Penile Doppler ultrasound"
• "Ultrasound of rectal cancer"
• "Ultrasonographic contrast agents"

April 29, 1992
European Society of Pediatric Radiology, 29th Congress, Budapest, Hungary
• "Multiplanar (3D) ultrasonography of the neonatal brain"

May 15, 1992
Pennsylvania Radiology Society Annual Meeting, Hershey, PA
• "Ultrasound guided prostate biopsies"

May 22, 1992
Leading Edge in Diagnostic Ultrasound, Atlantic City, NJ
• "Endorectal ultrasound of rectal cancer"
• "Prostate ultrasound 1992-Categorical course"

JOSEPH BONN, M.D.

September 10, 1991
Department of Radiology Grand Rounds, Harvard Medical School, Brigham & Women's Hospital, Boston, MA
• "Vascular stents: Technology and clinical applications"

September 10, 1991
New England Society for Cardiovascular & Interventional Radiology, Boston, MA
• "Palmaz iliac stent: Technique and clinical indications"

September 19-20, 1991
Pennsylvania Hospital, Department of Surgery, Philadelphia, PA
• "Advances in peripheral vascular interventions: Stents and atherectomy"

October 26, 1991
First Annual New England Symposium on Peripheral Vascular Disease, Newport, RI
• "Intra-arterial stents"

November 5, 1991
Cincinnati Angiography Club, Cincinnati, OH
• "Arterial stents: Technique and clinical aspects"

January 4, 1992
Alexandria Hospital/Cheasapeake Interventional Radiology Society, Alexandria, VA
• "Iliac artery stents: Indications and case discussions"
• "Metallic stents: Interventional applications"

March 5, 1992
Annual Blue Ribbon Lecture, Philadelphia Roentgen Ray Society, College of Physicians and Surgeons, Philadelphia, PA
• "Peripheral vascular disease: Emerging technologies for the interventional radiologist"

April 3, 1992
Annual Resident's Day Lecture, Philadelphia Obstetrical Society, College of Physicians and Surgeons, Philadelphia, PA
• "Interventional radiology in obstetrics and gynecology"

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April 6-9, 1992
17th Annual Meeting of the Society of Cardiovascular and Interventional Radiology, Washington, DC
• "Interventional techniques and tools"
• "Angioplasty and atherectomy"
• "Multicenter trial of Palmaz renal stents: Critical commentary"
• "Thrombolysis"

JOHN M. BOONE, Ph.D.

July 7-10, 1991
Annual Meeting of the AAPM, San Francisco, CA
• "Filter wheel equalization in DSA"
• "A binary screen for single pulse dual energy radiography"

February 17-20, 1992
Society of Photo-Optical Engineers Meeting, Newport Beach, CA
• "Radiographic equalization using computer controlled filter wheels"

April 5-10, 1992
Annual Meeting of the Association of University Radiologists, Chicago, IL
• "Adaptive exposure compensation for thoracic imaging"

EMILY F. CONANT, M.D.

February 18, 1992
Hospital of the University of Pennsylvania, Department of Radiology, Philadelphia, PA
• "The reconstructed breast: Strategies in imaging and interpretation"

March 25, 1992
Presbyterian Hospital of Philadelphia, Department of Radiology, Philadelphia, PA
• "The reconstructed breast: Strategies in imaging and interpretation"

P. MACKE CONSIGNY, Ph.D.

October 25-26, 1991
First Annual Southern New England Symposium on Peripheral Vascular Disease, Newport, RI
• "Pathophysiology of peripheral vascular disease"

February 3, 1992
Fourth Annual International Symposium on Vascular Diagnosis and Intervention, Miami, FL
• "Pathogenesis of peripheral vascular disease"

April 22, 1992
Rhone Poulenc Rorer, King of Prussia, PA
• "Restenosis after angioplasty: Causes and treatments"

June 30, 1992
Zynaxis Cell Science, Inc., Malvern, PA
• "Re-endothelialization of arteries after angioplasty"
STEPHEN A. FEIG, M.D.

September 4-6, 1991
National Cancer Institute Breast Imaging Workshop: State-of-the-Art and New Technologies, Bethesda, MD
• "Non-digital image receptor and processor technologies - State-of-the-art"
• "Non-digital image receptor and processor technologies - Research opportunities"

September 11, 1991
The Integration of Research and Clinical Practice in the Management of Cancer, An International Symposium, Englewood Hospital, Englewood, NJ
• "Breast cancer screening"

October 4-6, 1991
Workshops in Mammography, Sponsored by Workshops in Mammography, Inc., Washington, DC
• "Mammographic equipment, technique and quality control"
• "Teaching pearls in mammographic interpretation"
• "Evaluation and management of breast calcifications"
• "Criteria for clinical image evaluation for the ACR mammography accreditation program"

October 11-13, 1991
American Cancer Society Workshop on Guidelines and Screening for Breast Cancer, Pasadena, CA
• "Biologic variations: Incidence by age, risk assessment"

October 25, 1991
Department of Radiology, University of Colorado Health Sciences Center, Denver, CO
• "Analyzing breast calcifications"

October 26-27, 1991
American College of Radiology Symposium on Mammography, Denver, CO
• "Breast calcifications, Part I"
• "Breast calcifications, Part 2"

November 19, 1991
Mammography Society of Philadelphia, Philadelphia, PA
• "The mammogram report (including medicolegal considerations)"

December 1-6, 1991
The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "Preoperative localization of nonpalpable breast lesions"
• "Preoperative localization techniques for nonpalpable breast lesions"

December 12, 1991
University of Medicine and Dentistry of New Jersey, Department of Radiology, Newark, NJ
• "Breast calcifications"

February 4, 1992
Christiana Hospital, Medical Center of Delaware, Department of Radiology, Newark, DE
• "Breast calcifications"
March 6-7, 1992  The Seventh Dr. Robert K. Match Distinguished Scholar Program, Controversies in the Management of Breast Cancer, Department of Surgery, Albert Einstein College of Medicine, New York, NY  
• "Routine mammographic screening: Does it reduce mortality?"

March 12-14, 1992  Second Annual Breast Imaging Conference, Orlando Regional Medical Center, University of Florida College of Medicine, Lake Buena Vista, FL  
• "Localization of non-palpable lesions"
• "Advanced mammographic interpretation workshop"
• "Evaluation of microcalcifications on mammograms"

March 19-20, 1992  Film Processing in Medical Imaging: A Practical Update for the 90's, Rochester Institute of Technology Center for Imaging Sciences, Rochester, NY  
• "The role of the radiologist in film processing"

March 21, 1991  Radiological Society of New Jersey and the Academy of Medicine of New Jersey, Seminar on Clinical Mammography, New Brunswick, NJ  
• "The mammography report including medical and legal implications"

April 1-2, 1992  28th Annual Meeting, National Council on Radiation Protection and Measurements, Arlington, VA  
• "Mammography: Risk and benefit"

April 4-5, 1992  Society for the Study of Breast Disease, Annual Meeting, Philadelphia, PA  
• "Value of second opinions in avoiding unnecessary biopsy of non-palpable mammographic findings"

April 23, 1992  Department of Radiology, New York Hospital, Cornell Medical College, New York, NY  
• "Breast calcifications"

April 27-May 1, 1992  25th National Conference on Breast Cancer, Sponsored by the American College of Radiology, Boston, MA  
• "Breast self-examination: Review of the evidence"
• "Evaluation of calcifications"
• "Radiation risk and cost versus screening benefit"

RICK I. FELD, M.D.

November 19, 1991  Greater Delaware Valley Ultrasound Society, Philadelphia, PA  
• "Interventional ultrasound"

January 9, 1992  New Jersey Institute of Ultrasound in Medicine, Livingston, NJ  
• "Endoscopic and endoluminal sonography of gastrointestinal tract"
January 16, 1992  Visiting Professor, Reading Hospital and Medical Center,Reading, PA  
• "Endoscopic and endoluminal sonography of gastrointestinal tract"

April 30, 1992  General Electric CT Seminar, Marriott Hotel, Philadelphia, PA  
• "CT guided biopsy and drainage procedures"

May 3, 1992  Sonix Vascular Ultrasound Course, Orlando, FL  
• "Abdominal color Doppler ultrasound"

May 27, 1992  The Leading Edge in Diagnostic Ultrasound, Atlantic City, NJ  
• "Case studies: Peripheral vascular ultrasound"

ADAM E. FLANDERS, M.D.

December 1-6, 1991  The Radiological Society of North America Annual Meeting, Chicago, IL  
• "Predictive value of MR Imaging in the determination of neurologic recovery in acute cervical spinal cord injury"

March 3-6, 1992  Reading Hospital and Medical Center, Department of Neuroradiology, Reading, PA  
• "MR imaging of spinal neoplasia"  
• "MR imaging of cervical spine trauma"

May 8-10, 1992  The American Spinal Injury Association Annual Meeting, Toronto, Canada  
• "MRI as a predictor of neurologic outcome in cervical SCI"

May 29-June 7, 1992  The American Society of Neuroradiology Annual Meeting, St. Louis, MO  
• "Improvement in visibility of intraocular neoplasia using fat-suppression and Gadolinium with MRI"

DAVID P. FRIEDMAN, M.D.

September 20, 1991  Pennsylvania Neurosurgical Society Meeting, Philadelphia, PA  
• "Efficient imaging strategies in 1991"

BARRY B. GOLDBERG, M.D.

• "Biliary tract disease and pancreatitis"

August 29-September 7, 1991  World Federation for Ultrasound in Medicine and Biology, Copenhagen, Denmark  
• "Endoluminal urologic ultrasound"  
• "Liver malignancy ultrasound guided treatment"
October 2-7, 1991  Peking Union Medical College Hospital, Beijing, China
• "Future trends in ultrasound"
• "Color Doppler imaging in the abdomen"

October 8-11, 1991  Xian Medical University Hospital, Xian, China
• "Future trends in ultrasound"
• "Color Doppler imaging in the abdomen"
• "Endoluminal ultrasound"

October 26-November 1, 1991  IV National Congress of SIUMB, VII International Ultrasound Conference, Rome, Italy
• "Recent advances in mini probes in ultrasonography"

November 14, 1991  Albany Medical College, Albany, NY
• "New horizons in ultrasound"

November 14, 1991  Albany Chapter of the American College of Radiology and American College of Obstetrics and Gynecology, Albany, NY
• "Color Doppler ultrasound"

November 30-December 6, 1991  The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "Trends, principles, artifacts, and safety: Where have we been? Where are we going?"
• "Interventional, intraoperative and new applications: New horizons in ultrasound"
• "Endoluminal ultrasound: RSNA independent study programs"

December 9-10, 1991  St. Luke’s Hospital, Department of Radiology, New York, NY
• "Advances in ultrasound: Color Doppler"
• "Endoluminal ultrasound and contrast agents"
• "Gynecologic ultrasound: An update"

March 5-12, 1992  The 36th Annual American Institute of Ultrasound in Medicine Convention, San Diego, CA
• "Evaluation of an ultrasound contrast agent"
• "Endoluminal laparoscopic ultrasound"
• "Government regulations and other factors affecting ultrasound"
• "Future Directions Section: Endoluminal Ob/Gyn ultrasound"

April 4, 1992  Society for the Study of Breast Disease Annual Meeting, Philadelphia, PA
• "Advances in the use of ultrasound in the diagnosis of breast disease"

May 6, 1992  Malaysian Society of Ultrasound in Medicine, Penang, Malaysia
• "Assessment of fetal growth: Technique and pitfalls"
• "The use of ultrasound in the first trimester of pregnancy"
• "Techniques of abdominal scanning"
May 9-10, 1992  
Malaysian Society of Ultrasound in Medicine, Kuala Lumpur, Malaysia  
- "Assessment of fetal growth"  
- "Transvaginal ultrasound in obstetrics and gynecology"  
- "Evaluation of pelvic masses"  
- "Ultrasound in the management of the infertile couple"  
- "Interventional ultrasound in obstetrics and gynecology"

May 12, 1992  
National University Hospital Training Centre, Singapore  
- "Color Doppler of the abdomen and pelvis"

May 21, 1992  
Australian Society of Ultrasound in Medicine, Sydney, Australia  
- "New horizons in ultrasound: 3-D, contrast agents and endoluminal ultrasound"

May 27-29, 1992  
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University, Atlantic City, NJ  
- "New horizons: Endoluminal ultrasound, contrast agents, and 3-D ultrasound"

May 29, 1992  
The Fourth Drexel University Symposium on Ultrasound Imaging, Atlantic City, NJ  
- "New horizons in ultrasound: A clinical point of view"

June 2, 1992  
American Association of Laboratory Animal Science Tribranch Symposium, Philadelphia, PA  
- "Animal models: Their importance in advancing the use of ultrasound"

June 19-27, 1992  
Israeli Ultrasound Society Meeting, Tel-Aviv, Israel  
- "Color Doppler: Quantity versus quality"  
- "Miniature ultrasound transducers vascular and non-vascular uses"  
- "Ultrasound contrast agents"

June 29-30, 1992  
Second Congress of the International Society for Ultrasound in Ob/Gyn, Bonn, Germany  
- "Evaluation of the endometrial and fallopian canals using miniature ultrasound transducers"  
- "New techniques"

CARLOS F. GONZALEZ, M.D.

September 2-4, 1991  
III Congreso de la Sociedad Iberolaterino-Americana de Neuroradiologia Diagnostica y Therapeutica, Guadalajara, Mexico  
- "Correlation between structural brain lesions and emotional and cognitive function in patients with multiple sclerosis: An MRI study"  
- "The role of fat suppression and Gadolinium DTPA in the MRI diagnosis of malignant tumors of the eye"  
- "MRA evaluation of hemodynamic factors leading to stenotic lesions of the carotid artery"
September 16, 1991  
Dementia Research Center, New York University, New York, NY  
• "Neuropsychological and structural brain lesions in multiple sclerosis"

October 5, 1991  
Zurbrugg Hospital, Department of Radiology, Riverside, NJ  
• "MRI today with special reference to head and spine: Annual update in medicine"

GEORGE W. GROSS, M.D.

January 20-22, 1992  
Annual Meeting of the Society of Thoracic Radiology, Laguna Niguel, CA  
• "Radiographic congestive heart failure following extracorporeal membrane oxygenation (ECMO)"
• "Chest radiographic appearances in neonates on extracorporeal membrane oxygenation (ECMO)"

March 4, 1992  
Department of Radiology, Royal Postgraduate Medical School at Hammersmith Hospital, London, England  
• "Extracorporeal membrane oxygenation in neonates: Principles and chest radiographic appearances"

April 30, 1992  
Annual Meeting of the European Society for Pediatric Radiology, Budapest, Hungary  
• "Common findings and complications involving the abdomen in neonates treated with extracorporeal membrane oxygenation: Imaging appearances"

May 12, 1992  
Annual Meeting of the American Roentgen Ray Society, Orlando, FL  
• "Comparison of sinus radiographs to sinus CT in the assessment of the paranasal sinus disease in pediatric asthma"

May 17, 1992  
Annual Meeting of the Society for Pediatric Radiology, Orlando FL  
• "Trial of ECMO: Chest radiographic changes vs functional residual lung capacity"

ETHAN J. HALPERN, M.D.

April 22-26, 1992  
The 40th Annual Meeting of the Association of University Radiologists, Chicago, IL  
• "Effect of focal zone on a curved array transducer"

DAVID KARASICK, M.D.

September 23, 1991  
International Skeletal Society Closed Meeting, San Diego, CA  
• "Myositis ossificans and osteosarcoma"
• "Leiomyoma of bone-Case presentations"
October 20, 1991  
Mercy Catholic Hospital, Department of Radiology, Darby, PA  
• "Radiologic approach to arthritis"

March 30-April 1, 1992  
• "Imaging of the traumatized elbow"  
• "Wrist arthrography"  
• "Common adult foot disorders"

STEPHEN KARASICK, M.D.

September 25, 1991  
Mercy Catholic Hospital, Department of Radiology, Darby, PA  
• "Interesting GU cases"

January 11, 1992  
Uroradiology '92 - Society of Uroradiology, Scottsdale, AZ  
• "Spectrum of hysterosalpingography findings after myomectomy"

May 12, 1992  
92nd Annual Meeting of the American Roentgen Ray Society, Orlando, FL  
• "Preoperative assessment of uterine fibroids: Role of hysterosalpingography, ultrasound and MRI"

ALFRED B. KURTZ, M.D.

October 12-13, 1991  
Ultrasound Update - 1991, OB-Ultrasound Exam and Transvaginal Sonography Update, Sacramento, CA  
• "First trimester - Transvaginal/transabdominal ultrasound"  
• "Second and third trimester - Transvaginal ultrasound"  
• "GYN evaluation - Transvaginal/transabdominal ultrasound"

November 25, 1991  
New York Roentgen Society, New York, NY  
• "Adnexa and ovaries"  
• "The biophysical profile: Diagnostic capabilities, pitfalls, and accuracy"

December 1-6, 1991  
The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL  
• "Special course in ultrasound: Obstetrics and gynecology"  
• "Measurement parameters: What you need to know"

January 22, 1992  
Visiting Professor Conference, Mercy Catholic Medical Center, Fitzgerald Mercy Hospital, Darby, PA  
• "Residency training program"

February 19, 1992  
Department of Medical Imaging, Presbyterian-University of Pennsylvania Medical Center, Philadelphia, PA  
• "New concepts in ultrasound"
March 8-11, 1992
The 36th Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA
• "2-D and color flow evaluation of pelvic masses"
• "Twin pregnancies: Predictive accuracy of first trimester abdominal ultrasound in determining placental and membrane status"
• "Abdomen-general"

April 5-8, 1992
Ultrasound: 1992 Conference of the Harvard Medical School, Departments of Radiology and Continuing Education, Brigham and Women's Hospital, Boston, MA
• "Antenatal assessment: Biophysical profile and Doppler"
• "Fetal anomalies: Head, face, spine"
• "Duplex Doppler for diagnosis of ovarian cancer: Questions and discussion"

April 7, 1992
Brigham and Women's Hospital, Department of Radiology, Boston, MA
• "Duplex Doppler for diagnosing ovarian cancer"

April 24, 1992
The Michigan Sonographers' Society, The Sixteenth Annual Spring Symposium: The Masters of Ultrasound, Detroit, MI
• "Ultrasound evaluation of multiple gestations"
• "Ultrasound of the liver: Focal and diffuse disease"
• "The biophysical profile: Diagnostic capabilities, pitfalls, and accuracy"

May 15-17, 1992
The 16th Annual Spring Weekend Symposium, Department of Radiology, State University of New York, Health Science Center at Brooklyn, NY
• "Focal and diffuse disease of the hepatobiliary system"
• "Introduction to deep Doppler"
• "The uterus"
• "The post partum pelvis"

May 19, 1992
Greater Delaware Valley Ultrasound Society, Philadelphia, PA
• "Gynecology symposium: Ovarian cancer"

May 27-29, 1992
The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University, Atlantic City, NJ
• "The post partum uterus"
• "Diagnosis and management of fetal anomalies"

ANNA S. LEV-TOAFF, M.D.

January 20, 1992
Temple University Hospital, Philadelphia, PA
• "Mammography and CT after reconstructive breast surgery"

May 11, 1992
The American Roentgen Ray Society Annual Meeting, Orlando, FL
• "Comparative reimbursemens to radiologists and non-radiologists for ultrasound examinations in the private office setting"
• "Stability of malignant breast microcalcifications"
DAVID C. LEVIN, M.D.

October 11, 1991
University of Massachusetts Medical Center, Worcester, MA
• "The use of stents in peripheral arteries"

October 21, 1991
Medical Center of Delaware, Christiana Hospital, Wilmington, DE
• "Application of stents in the peripheral circulation"

November 11, 1991
Society of Chairmen of Academic Radiology Departments,
Washington, DC
• "Faculty recruitment and retention"

December 2-5, 1991
The 77th Scientific Assembly and Annual Meeting of the
Radiological Society of North America, Chicago, IL
• "Utilization rates of barium enemas and colonoscopy: Recent
trends"
• "Relative reimbursement rates to radiologists and
nonradiologists for common outpatient radiographic
studies"
• "Comparison of quality of images produced by radiologists and
nonradiologists: A study by a major third-party carrier"
• "Diagnostic and interventional coronary angiography"

January 26, 1992
The American College of Cardiology Meeting, Bethesda, MD
• "The cardiac cath lab of the '90s"

March 16, 1992
University of Minnesota Hospital and Clinic, Radiology Grand
Rounds, Minneapolis, MN
• "How to understand transposition of the great vessels using
embryological concepts"
• "Self-referral for imaging studies by nonradiologists: Cost
and quality issues"

March 17, 1992
Minnesota Veterans Administration Medical Center,
Minneapolis, MN
• "Use of stents in peripheral vessels"

April 24, 1992
Society of Chairmen of Academic Radiology Departments,
Chicago, IL
• "Results of the 1991 SCARD survey"

May 15, 1992
The Pennsylvania Radiological Society. Hershey, PA
• "Trends in utilization of barium enemas and colonoscopy in
Pennsylvania and their implications"

May 20, 1992
Department of Radiology, Albany Medical College, Albany, NY
• "How to interpret coronary arteriograms"

May 20, 1992
Northeastern New York Radiological Society, Albany, NY
• "Cost and quality issues in imaging by radiologists and
nonradiologists"
June 16, 1992  
E.I. DuPont Forum 2000 Symposium for Academic Radiology  
Chairmen, Wilmington, DE  
• "Perspectives and examples of quality initiatives in academic radiology"

**JI-BIN LIU, M.D.**

September 1-6, 1991  
The 6th World Congress in Ultrasound, Copenhagen, Denmark  
• "Endoluminal ultrasound: Gynecologic uses"

March 8-11, 1992  
The 36th Annual Convention of America Institute of Ultrasound in Medicine, San Diego, CA  
• "Endoluminal esophageal ultrasound"

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

November 20, 1991  
Alfred I. duPont Institute, Wilmington, DE  
• "Pediatric brain tumors"

October 21-27, 1991  
eEconomics of Diagnostic Imaging 1991: National Symposium, Washington, DC  
• "Non-ionic contrast: Issues and societal initiatives"

May 16, 1992  
Non-Ionic Contrast 1992: Practical Issues, Chicago, IL  
"Non-ionic contrast: Issues and societal initiatives"

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

August 10-16, 1991  
Tenth Annual Scientific Meeting of the Society of Magnetic Resonance in Medicine, San Francisco, CA  
• "Aortic ghost artifact in ultrashort TE multislice gradient echo images: Paradoxical decrease by gadopentatate dimeglumine"  
• "Kaopectate and barium: Two inexpensive oral MR agents with negative contrast on conventional SE images and positive contrast on ultrashort TE gradient echo images"  
• "Chemical shift artifact along the slice-select axis"

September 23, 1991  
Visiting Professor, William Beaumont Hospital, Royal Oak, MI  
• "MRI of the liver"

October 7-9, 1991  
Visiting Lecturer, The Second International Symposium on Budd-Chiari Syndrome, Kyoto, Japan  
• "Color Doppler sonography of the liver: Applications to Budd-Chiari syndrome"

October 24-16, 1991  
Visiting Professor, The University of Arizona, Tucson, AZ  
• "MRI of the liver"  
• "MRI of the pancreas"
January 27, 1992  Christiana Hospital, Department of Radiology, Christiana, DE
• "MRI of the female pelvis"

March 19, 1992  William Beaumont Hospital, Department of Radiology, Royal Oak, MI
• "MRI and US of hepatic vascular disease"

March 19, 1992  Michigan US/CT Society, Royal Oak, MI
• "MRI of diffuse liver disease"

March 23, 1992  Texas Medical Center, Houston, TX
• "MRI of the liver - vascular disease"
• "MRI of the liver - diffuse disease"

March 24, 1992  Texas Radiologic Society, Houston, TX
• "MRI of the pancreas"

April 26, 1992  Tenth Annual Meeting, Society of Magnetic Resonance Imaging, Educational Program, New York, NY
• "MRI of the liver"

LAURENCE NEEDLEMAN, M.D.

September 21, 1991  Twelfth Annual Sonic Symposium, Mississippi Ultrasound Society, Jackson, MS
• "Abdominal duplex and color Doppler"
• "Cerebrovascular ultrasound"

October 2-7, 1991  Peking Union Medical College Hospital, Beijing, China
• "Obstetrical ultrasound"
• "Obstetrical Doppler ultrasound"
• "Peripheral vascular Doppler and color ultrasound"

October 8-11, 1991  Xian Medical University Hospital, Xian, China
• "Obstetrical ultrasound"
• "Obstetrical Doppler ultrasound"
• "Peripheral vascular Doppler and color ultrasound"

October 14, 1991  Chinese Medical Imaging Technology Shanghai Institute, Shanghai, China
• "Peripheral vascular Doppler and color ultrasound"

December 2-3, 1991  The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "Upper extremity venous disease: Sonographic venographic comparison"
• "Refresher course: Peripheral venous ultrasound"

March 8-11, 1992  The 36th Annual Meeting of the American Institute of Ultrasound in Medicine, San Diego, CA
• "Meet the professor: Peripheral venous ultrasound"
March 13-14, 1992

Ob/Gyn and Abdominal Sonography: Update 1992, University of California, San Francisco, San Francisco, CA
- "Obstetrical Doppler"
- "Venous ultrasound"
- "Diffuse liver disease and portal hypertension"

April 5-8, 1992

Harvard Medical School, Division of Ultrasound, Boston, MA
- "Doppler: Carotid arteries"
- "Doppler: Other applications"

April 15, 1992

Visiting Professor, North Shore University Hospital Department of Radiology, Manahasset, NY
- "Carotid ultrasound"
- "Peripheral venous ultrasound"

April 23, 1992

DC Metropolitan Area Chapter of the American College of Radiology, Washington, DC
- "Color flow: Head to toe"

May 1-2, 1992

15th Annual Postgraduate Seminar in Diagnostic Ultrasound, Detroit, MI
- "Ob/Gyn Doppler"
- "Venous ultrasound"
- "Diffuse liver disease and portal hypertension"

May 15, 1992

Center for Disease Control, Workshop on Screening Methods for Thyroid Disease in Populations Near Nuclear Facilities, Atlanta, GA
- "Thyroid ultrasound"

May 27, 1992

The Leading Edge in Diagnostic Ultrasound, sponsored by Thomas Jefferson University, Atlantic City, NJ
- "Non-atherosclerotic peripheral vascular abnormalities"
- "Peripheral vascular case studies"

BHASKARA RAO, M.D.

September 3, 1991

6th World Congress in Ultrasound Copenhagen, Denmark
- "Color Doppler flow imaging of vasculature in normal and pathologic lymph nodes"

December 12, 1991

Government Medical College, Kakinada, India
- "Color Doppler flow imaging of abdomen"

December 15-16, 1991

6th Asian Oceanian Congress of Radiology, New Delhi, India.
- "Color Doppler flow imaging: Image optimization and artifacts"
- "Color Doppler flow imaging: Applications in the abdomen"

February 4, 1992

North East Ohio Ultrasound Society, Cleveland, OH
- "Color Doppler flow imaging applications in gynecology and obstetrics"
March 10, 1992
The 36th Annual Convention of the American Institute of Ultrasound in Medicine, San Diego, CA
- "Color Doppler flow imaging of carotid body tumors"

April 24-25, 1992
XI National Congress of Mexican Association of Ultrasound in Medicine, Mazatlan, Mexico.
- "Image optimization during color Doppler flow studies"
- "Problems and perspectives: Color Doppler flow imaging"
- "Color Doppler flow imaging of abdomen"
- "Color Doppler flow imaging: Applications in gynecology and obstetrics"
- "Transvaginal color Doppler flow imaging"

May 29, 1992
The Leading Edge 12th annual meeting, sponsored by Thomas Jefferson University, Atlantic City, NJ.
- "Sonography of the gastrointestinal tract"

VIJAY M. RAO, M.D.
October 22, 1991
University of Pennsylvania, Magnetic Resonance Imaging: A Short Course Trio, Philadelphia, PA
- "MRI of sinonasal disease"

November 6, 1991
Visiting Professor, Mercy Catholic Medical Center, Fitzgerald Mercy Division, Darby, PA
- "Head and neck radiology: Case presentation"

December 1-6, 1991
The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Short TE high-resolution spin-echo imaging of the head and neck"

April 25, 1992
The 25th Annual Conference and Postgraduate Course in Head and Neck Radiology, Chicago, IL
- "TMJ: Internal derangements, inflammation and tumors"

MARK E. SCHWEITZER, M.D.
October 8, 1991
Delaware Valley Magnetic Resonance Imaging Society, Philadelphia, PA
- "MR of the wrist"

November 8, 1991
Nassau County Medical Center/SUNY Stony Brook, Department of Radiology, Long Island, NY
- "MR of the wrist"

December 1-6, 1991
The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
- "Internal derangements of the wrist: Comparison of various spin-echo techniques, STIR and MR arthrography with arthroscopic confirmation"
• "MR imaging anatomic correlation of articulations and ligaments of the occipital atlanto-axial complex"

GARY SHAKER, M.D.
April 22-24, 1992
The Annual Meeting of The Association of University Radiologists, Chicago, IL
• "Adaptive exposure compensation for thoracic imaging"

MARCELLE J. SHAPIRO, M.D.
March 11, 1992
Northern New Jersey Regional Angio Club, Hackensack Hospital, Hackensack, NJ
• "Peripheral vascular stent applications"
April 7, 1992
The 77th Annual Meeting of the Society of Cardiovascular Interventional Radiology, Washington, DC
• "Non-vascular endoluminal ultrasound"

ROBERT M. STEINER, M.D.
September 19, 1991
Visiting Professor, University of California, Irvine, CA
• "MRI in diffuse bone marrow disorders"

November 1, 1991
Solis-Cohen Society of Philadelphia, Philadelphia, PA
• "Congenital heart disease in the adult patient"

December 4-6, 1991
The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• "Current status of postgraduate education and practice of chest radiology in radiology departments with residency and fellowship training programs"
• "Bone marrow MR imaging in adult-onset acute leukemia: Value of the three-point Dixon Method in error-free fat and water separation"

March 3, 1992
Mercy Catholic Medical Center, Department of Radiology, Darby, PA
• Case Presentation Conference

March 12, 1992
Presbyterian Medical Center, Department of Radiology, Philadelphia, PA
• Case Presentation Conference

April 16, 1992
Cardiology Grand Rounds, Deborah Heart and Lung Center, Brownsville, NJ
• "Adult congenital heart disease"
April 27, 1992 Radiology Grand Rounds, Cleveland Clinic Foundation, Cleveland, OH
  • "Pre-boards case review"
  • "Adult congenital heart disease"

April 27, 1992 Cleveland Radiological Society, Cleveland, OH
  • "Adult congenital heart disease"

April 28, 1992 Grand Rounds, Western Reserve University Hospitals of Cleveland, Cleveland, OH
  • "Multimodality imaging of the pericardium"

KEVIN L. SULLIVAN, M.D.

October 26, 1991 First Annual Southern New England Symposium on Peripheral Vascular Disease, Rhode Island Hospital, Brown University, Newport, RI
  • "Techniques and results in lower extremity thrombolysis"

December 5, 1991 The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
  • "Hemodynamics of failing dialysis grafts"

LISA M. TARTAGLINO, M.D.

May 31-June 5, 1992 The Thirtieth Annual Meeting of the American Society of Neuroradiology, St. Louis, MO.
  • "MR imaging in a case of post-vaccination myelitis"

TALIN A. TASCYAN, Ph.D.

October 31-November 3, 1991 The 13th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Orlando, FL
  • "Could hemodynamic analyses be helpful in predicting blood flow signal levels in MRI?"

SIMON VINITSKI, Ph.D.

July 10, 1991 The 38th Annual Meeting of the Society of Nuclear Medicine, Cincinnati, OH
  • "Contrast enhancement of lung MR imaging"

August 12, 1991 The Tenth Annual Meeting of the Society of Magnetic Resonance in Medicine, San Francisco, CA
  • "Computer simulation of blood flow using short TE time-of-flight and phase contrast MRA"
  • "Characterization of atherosclerotic plaque by MRI"
October 23, 1991  Albany Medical College, Albany, NY  
- "New developments in body MRI: Ultrashort TE in fast spin-echo, snapshot imaging and 3D tissue characterization"

November 1, 1991  The 13th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Orlando, FL  
- "Image contrast in gradient and spin-echo MRI as a function of field strength"

December 1, 1991  The 77th Annual Meeting of the Radiological Society of North America, Chicago, IL  
- "Ultrashort TE spin-echo imaging: Optimization of T1 contrast and minimization of motion and susceptibility artifacts"

January 28-30, 1992  University of California Los Angeles, Department of Radiology, Los Angeles, CA  
- "Fast spin-echo imaging"  
- "Tissue characterization: Spectroscopy, contrast agents and artificial intelligence"

April 25-30, 1992  The Tenth Annual Meeting of the Society for Magnetic Resonance Imaging, New York, NY  
- "Ultrashort TE conventional and fast spin-echo imaging"  
- "Partial angle inversion recovery imaging: Spin-echo and snapshot implementation"  
- "Tissue segmentation using 3D feature map"  
- "Breath-hold variable angle fast spin-echo imaging"

RICHARD J. WECHSLER, M.D.

November 20, 1991  Mercy Catholic Hospital, Department of Radiology, Darby, PA  
- "Pathways to the scrotum"

January 23, 1992  The Society of Thoracic Radiology's Annual Post Graduate Course, Laguna, Niguel, CA  
- "The radiology of thoracic venous catheters"
EXHIBITS AND POSTER PRESENTATIONS

The 6th World Congress in Ultrasound, Copenhagen, Denmark - 1991
- "Immune activation index and resistive index in renal allograft rejection" (Rao, B)
- "Nonvascular endoluminal ultrasound" (Liu, JB)

Faculty Research Day, Thomas Jefferson University, Philadelphia, PA - 1991
- "Hemodynamic changes observed in experimental lateral saccular aneurysms after coil deposition" (Gonzalez, C)

The 77th Annual Meeting of the Radiological Society of North America, Chicago, IL - 1991
- "Endoluminal ultrasound: Nonvascular uses" (Liu, JB)

The Tenth Annual Meeting of the Society for Magnetic Resonance Imaging, New York, NY - 1992
- "MRI of the lung: High resolution fast spin-echo, tissue segmentation and contrast agents" (Vinitski, S)

The 92nd Annual Meeting of the American Roentgen Ray Society, Orlando, FL - 1992
- "Common findings and complications involving the abdomen associated with ECMO in neonates" (Gross, G)
- "Endoluminal Ultrasound" - Gold Medal Award (Liu, J-B, Goldberg, B)

Restenosis Summit IV, The Cleveland Clinic Foundation, Cleveland, OH - 1992
- "Smooth muscle cell mitogens released from arteries after balloon angioplasty" (Consigny, PM)
- "In vitro assay for attachment of endothelial cells to denuded arterial surfaces" (Consigny, PM)

The Thirtieth Annual Meeting of the American Society of Neuroradiology, St. Louis, MO - 1992
- "Imaging of tectal region lesions" (Friedman, D)

The Annual Meeting of the European Society of Pediatric Radiology, Budapest, Hungary - 1992
- "Abdominal complications associated with extracorporeal membrane oxygenation (ECMO) in neonates" (Gross, GW)
HONORS, EDITORIAL ACTIVITIES, SERVICE FOR 
NATIONAL OR REGIONAL ORGANIZATIONS

ARCHIE A. ALEXANDER, M.D.

• Reviewer, Abdomen Scientific Review Committee, American Institute of Ultrasound in Medicine
• Reviewer, Radiology

JOSEPH BONN, M.D.

• Appointed Chairman, Membership Committee, Society of Cardiovascular and Interventional Radiology
• Member, Nominating Committee, Philadelphia Angiography and Interventional Radiology Society
• Appointed Associate Editor, Radiology, (Interventional-Cardiovascular section)
• Reviewer, Radiology
• Reviewer, Journal of Vascular and Interventional Radiology
• Reviewer, American Journal of Roentgenology
• Reviewer, Journal of Vascular and Interventional Radiology
• Reviewer, Cardiovascular Interventional Radiology

JOHN M. BOONE, Ph.D.

• Chairman, AAPM Task Force on Image Intensifier Exposure Rates
• Member, AAPM Diagnostic X-ray Imaging Committee
• Member, AAPM Task Force on Image Intensifier - TV systems
• Member, AAPM Task Force on Exposure Meters in Diagnostic Radiology
• Member, AAPM Task Force on Quality Assurance in Diagnostic Radiology
• Editorial Board, Medical Physics Journal
• Editorial Board, Medical Physics
• Reviewer, American Journal of Physiology
• Reviewer, American Journal of Roentgenology
• Reviewer, IEEE Transactions on Medical Imaging
• Reviewer, Investigative Radiology
• Reviewer, Medical Physics

EMILY F. CONANT, M.D.

• Reviewer, American Journal of Roentgenology

P. MACKE CONSIGNY, Ph.D.

◊ Stauffer Award for best experimental research paper published in Investigative Radiology
• Reviewer, Investigative Radiology
• Reviewer, Heart and Vessels
• Reviewer, Brain Research
• Reviewer, RSNA Scholars Award Proposals
• Member, Long Range Planning Committee, Society of Cardiovascular and Interventional Radiology
• Member, Research Committee, Society of Cardiovascular and Interventional Radiology
SAUNDRA EHRlich, M.S.

◊ Stauffer Award for Best Experimental Research Paper published in Investigative Radiology

STEPHEN A. FEIG, M.D.

- Guest Examiner, American Board of Radiology
- Category Chairman, Breast Radiology, American Board of Radiology
- Member, Written Examination Committee, American Board of Radiology
- Member, Committee on Breast Imaging, American College of Radiology
- Member, Breast Task Force, American College of Radiology
- Member, Section on Breast Disease Syllabus II, Committee on Professional Self-Evaluation and Continuing Education, American College of Radiology
- Member, Mammography Practice Accreditation Committee American College of Radiology
- Member, Clinical Image Reviewer Training Committee, American College of Radiology Mammography Accreditation Program
- Member, Clinical Image Reviewer Subcommittee American College of Radiology, Mammography Accreditation Program
- Member, Committee on Mammography Reporting and Data Base System American College of Radiology
- Co-Chairman, Program Committee, 25th National Conference on Breast Cancer, American College of Radiology
- Member, Program Committee 26th National Conference on Breast Cancer, American College of Radiology
- Member, Committee on ACR Symposia, American College of Radiology
- Member, Committee on Mammography Symposia, American College of Radiology
- Expert Witness, Mammography Section, Task Force for Standard Setting in Radiology, American College of Radiology
- Center for Disease Control, American College of Radiology, Cooperative Agreement for Quality Assurance in Mammography
  - Member, Oversight Committee
  - Member, Committee on Radiologists Education
  - Member, Data Analysis and Research Committee
  - Member, Imaging Systems Focus Group
  - Member, Quality Assurance Manual Development Committee
  - Co-Chairman, Committee on Correlation of Phantom and Clinical Image Quality
- Member, Scientific Committee 72: Radiation Protection in Mammography, National Council on Radiation Protection and Measurements
- Member, Program Committee, First Biannual Course on Breast Imaging, Society for Breast Imaging
- Member, Mammography Advisory Committee, American Registry of Radiologic Technologists
- Member, Breast Cancer Awareness Committee, American Cancer Society, Philadelphia Division
- Editor, Breast Diseases, A Year Book Quarterly
- Co-Editor, Breast Diseases, 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

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• Reviewer, *Radiology*
• Reviewer, *Breast Cancer Research and Treatment*
• Reviewer, *Journal of the National Cancer Institute*

**RICK FELD, M.D.**

◊ Homer Mitchell Branch, Jr., M.D., Fellowship Award, Thomas Jefferson University Hospital
• Reviewer, *Clinical Imaging*

**ADAME E. FLANDERS, M.D.**

◊ RSNA Scholar Award, 1992-1994
• Consultant to Squibb Diagnostics, Contrast Division
• Appointed member of the Squibb Diagnostics Contrast Speakers Bureau

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

◊ O'Hara Resident Teaching Award - 1992

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

• Chairman and Director, Executive Committee, STAR Registry Committee
• Member, Technology Assessment Committee, Cardiovascular and Interventional Radiology Research and Education Foundation
• Member, Editorial Board, *Radiology*
• Member, Editorial Board, *Cardiovascular and Interventional Radiology*
• Member, Editorial Board, *Journal of Vascular and Interventional Radiology*
• Reviewer, *Circulation*

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

◊ Gold Medal Award, Endoluminal Ultrasound Scientific Exhibit, ARRS, Orlando, FL
◊ Certificate of Merit, Endoluminal Ultrasound, Non-Vascular Uses, *Radiology*
◊ Joseph H. Holmes Clinical Pioneer Award, American Institute of Ultrasound in Medicine, San Diego, CA
• President-Elect, 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
• Treasurer, World Federation for Ultrasound in Medicine and Biology
• Treasurer, International Congress on the Ultrasonic Examination of the Breast
• Honorary Professor, Peking Medical College, Beijing, China
• Honorary Professor, Xian University, Xian, China
• Honorary Member, Chinese Medical Association
• Honorary Member, Chinese Medical Imaging Technology Shanghai Institute, Shanghai, China
• Member, International Commission on Radiological Education, Radiological Society of North America
• Member, Committee on Accreditation, American College of Radiology
• Member, Technology Advisory Council of the Center for Advanced Sensor Technology Center of Southeastern Pennsylvania
• Member, Awards Committee, American Institute of Ultrasound in Medicine
• Member, International Organizing Committee for the International Congress on the Ultrasonic Examination of the Breast
• Member, Intersociety Committee on Systemized Refresher Courses, Commission on Education, American College of Radiology
• Member, Museum Exhibits Committee, 1995 Centennial Celebration, American College of Radiology
• Member, Public Information Advisory Board, Radiological Society of North America
• Member, Committee on Coding and Nomenclature, American College of Radiology
• Member, Task Force on Standards, American College of Radiology
• Member, 1992 Public Information Advisory Board, Radiological Society of North America
• Member, Ad Hoc Committee on the Procurement of Training and Research Grants in Ultrasound, American Institute of Ultrasound in Medicine
• Reviewer, United States/Israel Binational Science Foundation
• Editorial Advisory Board, Ultrasound in Medicine and Biology
• Editorial Consultant, American Journal of Roentgenology
• Editorial Consultant, Chest
• Editorial Consultant, Journal of Ultrasound in Medicine
• Editorial Consultant, Pediatrics
• Editorial Consultant, Radiology

CARLOS F. GONZALEZ, M.D.
• Elected Fellow of the American College of Radiology

ROBERT HARFORD, Ph.D.
• Referee Loebner Prize
• Member of American College of Radiology Research and Technology Assessment Committee

DAVID KARASICK, M.D.
• Board Examiner in Musculoskeletal Radiology, American Board of Radiology
• Consulting editor, Skeletal Radiology
• Book Reviewer, American Journal of Roentgenology
• Reviewer, American Journal of Radiology
• Reviewer, Radiographics
• Reviewer, Radiology

STEPHEN KARASICK, M.D.
• Membership Committee, Philadelphia Roentgen Ray Society
• Board Examiner, American Board of Radiology
• Reviewer, Radiographics
• Reviewer, Urologic Radiology
ALFRED B. KURTZ, M.D.

◊ Editor's Recognition Award with Distinction, Radiology
◊ President, Society of Radiologists in Ultrasound
◊ Chairperson, Committee on Education and Training of the Commission on Ultrasound, American College of Radiology
◊ Examiner, Oral Boards, Ultrasound Category, The American Board of Radiology
◊ Member, Commission on Ultrasound, American College of Radiology
◊ Member, Committee on Quality Assurance of the Commission on Ultrasound, American College of Radiology
◊ Member, Books Committee of Radiology Centennial, Inc.
◊ Member, Board of Governors, American Institute of Ultrasound in Medicine
◊ Member, Nominating Committee, American Institute of Ultrasound in Medicine
◊ Member, Ad Hoc Finance Committee, American Institute of Ultrasound in Medicine
◊ Member, Ad Hoc Committee on Sonologist Training Guidelines, American Institute of Ultrasound in Medicine
◊ Member, Committee on Ultrasonography, Pennsylvania Radiological Society
◊ Member, Membership Committee, Greater Delaware Valley Ultrasound Society
◊ Member, Manuscript Review Panel, American Journal of Roentgenology
◊ Member, Editorial Board, Journal of Ultrasound in Medicine
◊ Editorial Board, Radiology
◊ Special Reviewer, Obstetrics and Gynecology
◊ Editorial Board, RSNA Today
◊ Reviewer, Journal of the American Medical Association
◊ Reviewer, Radiographics
◊ Reviewer, American Journal of Obstetrics and Gynecology

JI-BIN LIU, M.D.

◊ Exhibit received Gold Medal Award in 92nd Annual Meeting of the American Roentgen Ray Society
◊ Exhibit awarded second prize at 6th World Congress in Ultrasound
◊ Exhibit awarded Certificate of Merit at 77th Annual Meeting of the Radiological Society of North America

DAVID C. LEVIN, M.D.

◊ 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
◊ Training Committee, Society of Cardiovascular and Interventional Radiology
◊ Ad hoc Committee on Society Administrative Reorganization, Society of Cardiovascular and Interventional Radiology, Society of Cardiovascular and Interventional Radiology
◊ Scientific Advisor, RSNA Research and Education Fund, Radiological Society of North America
◊ Public Information Advisory Board, Radiological Society of North America
◊ Cardiovascular Radiology Program Subcommittee Chairman, Radiological Society of North America
◊ Committee of Research and Technology Assessment of the Interventional Radiology Commission, American College of Radiology

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• Executive Committee, Council on Cardiovascular Radiology, American Heart Association
• Budget and Long Range Planning Committees of the Council on Cardiovascular Radiology, 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
• Cardiac Catheterization Committee, American College of Cardiology
• Executive Board, Philadelphia Roentgen Ray Society
• Economics Committee, Philadelphia Roentgen Ray Society
• Public Relations and Marketing Committee, Pennsylvania Radiological Society
• Committee on Diagnostic Radiology, Pennsylvania Radiological Society
• Ad hoc Committee on Angiography/Interventions, Pennsylvania Radiological Society
• Committee on Blue Cross, Blue Shield, and State Health Care Programs, Pennsylvania Radiological Society
• Program Committee, Pennsylvania Radiological Society
• Secretary-Treasurer, Society of Chairmen of Academic Radiology Departments
• Executive Committee, SCARD/AUR/ACR Conjoint Committee on Diagnostic Radiology
• Committee on Scientific Affairs, SCARD/AUR/ACR Conjoint Committee on Diagnostic Radiology
• Associate Editor, *Cardiovascular and Interventional Radiology*
• Reviewer, *New England Journal of Medicine*
• Reviewer, *American Journal of Roentgenology*
• Reviewer, *Catheterization and Cardiovascular Diagnosis*
• Associate Editor, *Radiology*
• Editorial Board, *American Journal of Cardiac Imaging*
• Editorial Board, *Clinical Imaging*
• Editorial Board, *Current Diagnosis*
• Editorial Board, *Investigative Radiology*
• Editorial Board, *Journal of Vascular and Interventional Radiology*

MARK M. MISHKIN, M.D.

• President, Eastern Radiological Society
• Chairman - ACR Committee on Learning File
• Medical Director, American College of Radiology Institute
• Chairman- ACR Committee on Drugs and Contrast Media
• Chairman - Neuroradiology Section, American Board of Radiology Written Examination
• Member, Food and Drug Administration-Medical Imaging Drugs Advisory Committee
• Member, Executive Committee and Board of Directors of the American Registry of Pathology (AFIP)
• Committee on Development of a Prototype Workstation for Self-Evaluation, American Board of Radiology
• Commission on Education, American College of Radiology
• Commission on General Radiology and Pediatric Radiology, Chairman of Contrast Committee - American College of Radiology
• Commission on Standards and Accreditation, American College of Radiology
• Reviewer, *Cancer*
• Reviewer, *Archives of Neurology*
• Reviewer, *Journal of the American Medical Association*
DONALD G. MITCHELL, M.D.

◊ 1992 Stauffer Award, best experimental research published in Investigative Radiology
• President, Greater Delaware Valley MRI Society
• Vice President, Greater Delaware Valley MRI Society
• Chairman, Residency Training Committee, Society for Magnetic Resonance Imaging
• Moderator (Scientific Session), Society for Magnetic Resonance Imaging
• Member, Board of Directors, Society for Magnetic Resonance Imaging
• Member, Magnetic Resonance Core Curriculum Committee, Society for Magnetic Resonance Imaging
• Member, Selection Panel for Body MRI Exhibits, Radiographics
• Member, RSNA Program Committee, Physics
• Editorial Board, Journal of Magnetic Resonance Imaging
• Reviewer, Works-in-Progress abstracts, Society for Magnetic Resonance Imaging
• Reviewer, American Journal of Roentgenology
• Guest Editor (Body MRI), Topics in Magnetic Resonance Imaging
• Reviewer, Journal of Computer Assisted Tomography
• Reviewer, Investigative Radiology
• Reviewer, abstracts for scientific papers, Society for Magnetic Resonance Imaging

LAURENCE NEEDLEMAN, M.D.

◊ Certificate of Appreciation, Peking Union Medical College Hospital of the Chinese Academy of Medical Sciences, Beijing, China
◊ Certificate of Appreciation, Xian Medical University, Xian, China
• President, Greater Delaware Valley Ultrasound Society
• Chairman of the Cardiac and Vascular Abstract Review Committee for the 1992 American Institute of Ultrasound in Medicine Meeting
• Secretary, Joint Review Committee for Education of Cardiovascular Technologists (Representative of the American College of Radiology)
• Honorary Member, Chinese Medical Imaging Technology, Shanghai Institute
• Member, Program Committee, Philadelphia Roentgen Ray Society
• Member, Convention Program Committee, American Institute of Ultrasound in Medicine
• Member, Economics Committee of the Ultrasound Commission of the American College of Radiology
• Member, Workshop on Screening Methods for Thyroid Disease in Populations Near Nuclear Facilities, Center for Disease Control, May 1992
• Reviewer for the 1992 American Heart Association Meeting

BHASKARA RAO, M.D.

• Vice Chairman, Continuing Education Committee, American Institute of Ultrasound in Medicine
• Reviewer, Journal of Clinical Ultrasound
• Reviewer, Abstracts for Gynecology section, American Institute of Ultrasound in Medicine
VIJAY M. RAO, M.D.

- Member, Ad Hoc Education Committee, American Society of Head and Neck Radiology
- Ad Hoc Member, Research Manpower Committee, NHLBI, National Institutes of Health
- Reviewer, *American Journal of Neuroradiology*
- Reviewer, *Radiology*
- Reviewer, *Journal of Cancer Research*
- Reviewer, Veterans Administration Grants

MARK E. SCHWEITZER, M.D.

- Vice President, Delaware Valley MR Society
- Member, Expert Panel, Orthopedic Radiology Pathology Society
- Reviewer, *Radiology*
- Reviewer, *American Journal of Roentgenology*

GARY S. SHABER, M.D.

- Reviewer, *Radiology*

MARCELLE J. SHAPIRO, M.D.

- Editor's Recognition Award for Distinction in Reviewing, *Radiology*
- Secretary-Treasurer, Philadelphia Angiography and Interventional Radiology Society
- Patient Information Brochure Committee, Society of Cardiovascular and Interventional Radiology
- Executive Committee, Medical Alumni Society, University of Pennsylvania School of Medicine
- Reviewer, *American Journal of Roentgenology*
- Reviewer, *Investigative Radiology*
- Reviewer, *Journal of Interventional Radiology*
- Reviewer, *Journal of Vascular & Interventional Radiology*
- Reviewer, *Radiology*

PAUL W. SPIRN, M.D.

- Reviewer, *Radiology*

ROBERT M. STEINER, M.D.

- President Elect, Philadelphia Roentgen Ray Society
- Chairman, Training and Standards Committee, Society of Thoracic Radiology
- Secretary, Philadelphia Roentgen Ray Society
- Member, American College of Radiology, Intersociety Commission of the American College of Radiology
- Member, Board of Directors, North American Society for Cardiac Radiology
- Member, Committee on Diagnostic Radiology, Pennsylvania Radiologic Society
- Member, Executive Committee, Philadelphia Roentgen Ray Society
• Member, Scientific Exhibits Committee, Radiological Society of North America
• Editorial Board, *American Journal of Cardiac Imaging*
• Editorial Board, *Heart and Vessel*
• Reviewer, *Radiology*
• Reviewer, *American Journal of Roentgenology*
• Reviewer, *RadioGraphics*
• Exhibit Review Committee, *RadioGraphics*

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

• Moderator of Cardiovascular Session at The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL
• Member, SCVIR Research Committee
• Reviewer, *Radiology*
• Reviewer, *Journal of Vascular and Interventional Radiology*

**SIMON VINITSKI, Ph.D.**

◊ Stauffer Award, for Best Experimental Research Paper, published in *Investigative Radiology*
• Member, Executive Committee, Center of Excellence in Biomedical Engineering
• Member, Scientific Committee, Annual Meeting of the Society of Nuclear Medicine
• Session Chair, MR Angiography, Tenth Annual Meeting of the Society of Magnetic Resonance Imaging, New York, NY
• Session Chair, Physics Sections, Radiological Society of North America 78th Scientific Assembly
• Reviewer, *Medical Physics*
• Reviewer, *Journal of Magnetic Resonance Imaging*

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

• Chairman, Program Committee, Philadelphia Roentgen Ray Society
• Member, Committee on Continuing Education, Pennsylvania Radiological Society
• Reviewer, *CRC Critical Reviews on Diagnostic Imaging*
• Reviewer, *Clinical Imaging*
Appendix A

FUNDED RESEARCH
**ACTIVE GRANT SUMMARY**
Revised 8/7/92
(Report reflects current year of award period)

<table>
<thead>
<tr>
<th>PRINCIPAL INVESTIGATOR</th>
<th>TITLE OF PROJECT</th>
<th>FUNDING SOURCE</th>
<th>PERSONNEL COSTS</th>
<th>OTHER DIRECT COSTS</th>
<th>TOTAL DIRECT COSTS</th>
<th>INDIRECT COSTS</th>
<th>TOTAL COSTS FUNDED</th>
<th>FY ACTUAL DIRECT EXPENSES</th>
<th>FY ACTUAL INDIRECT EXPENSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boone, J.</td>
<td>Automated Equalization In DSA Using Filter Wheels</td>
<td>Whitaker Foundation</td>
<td>37,899</td>
<td>5,500</td>
<td>43,399</td>
<td>8,680</td>
<td>52,079</td>
<td>38,227</td>
<td>7,645</td>
</tr>
<tr>
<td>Boone, J.</td>
<td>Equalized Dual Energy Dual Phosphor Chest Radiography</td>
<td>NIH</td>
<td>50,032</td>
<td>52,200</td>
<td>102,232</td>
<td>44,809</td>
<td>147,041</td>
<td>31,505</td>
<td>17,289</td>
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**TOTAL ACTIVITY**

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**ACTIVE GRANT SUMMARY**
Revised 8/7/92
(Report reflects entire award period)

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### ACTIVE GRANT SUMMARY
Revised 8/7/92
(Report reflects entire award period)

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<td>Tasciyan, T. (#080-08291)</td>
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