

Spring 1982

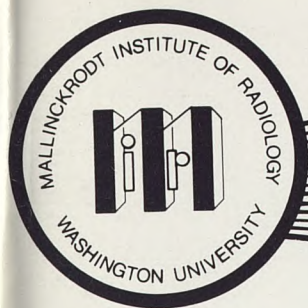
Focal Spot, Spring 1982

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Focal Spot

A NEWSLETTER OF THE MALLINCKRODT INSTITUTE OF RADIOLOGY

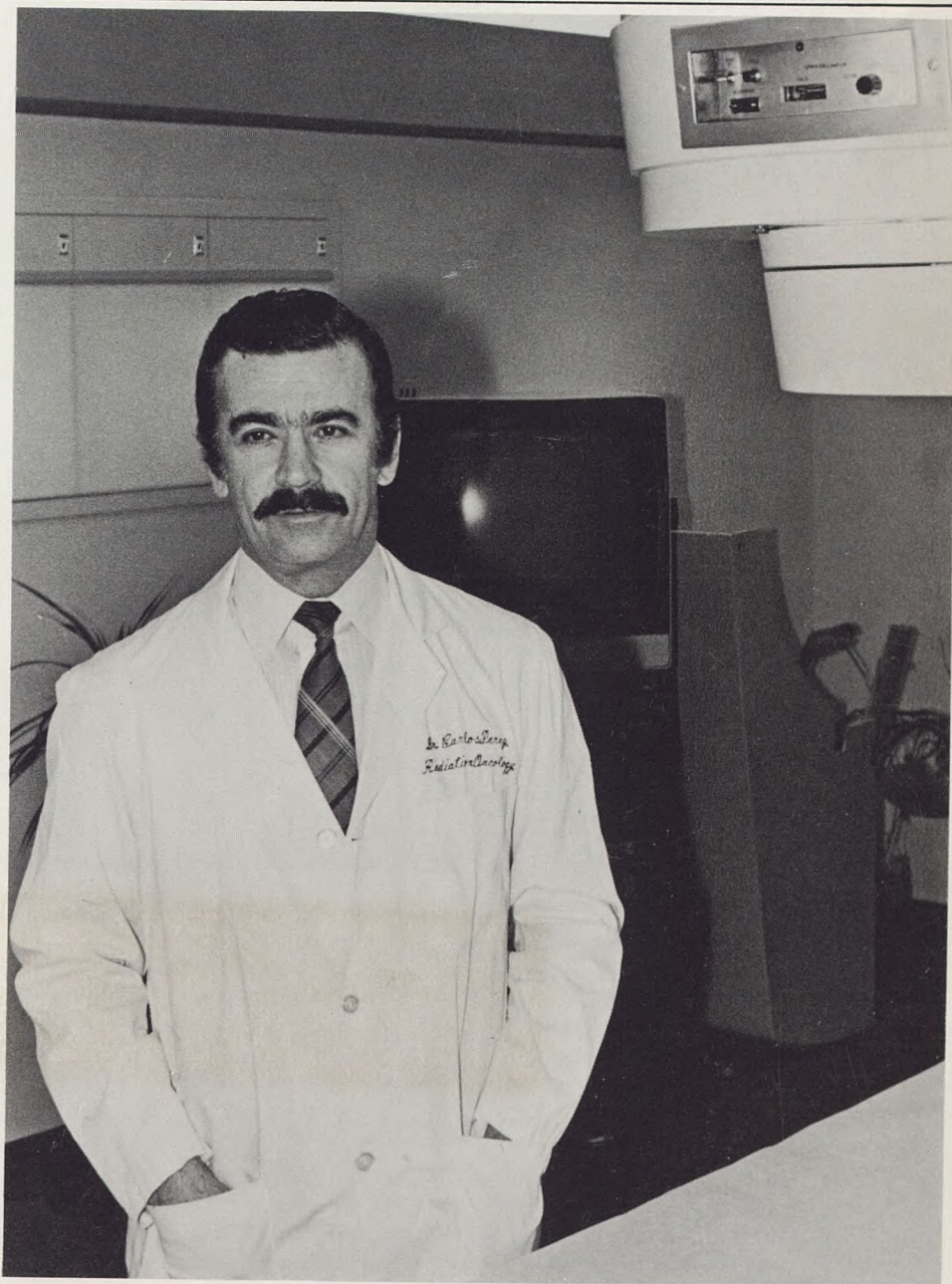
VOLUME XI

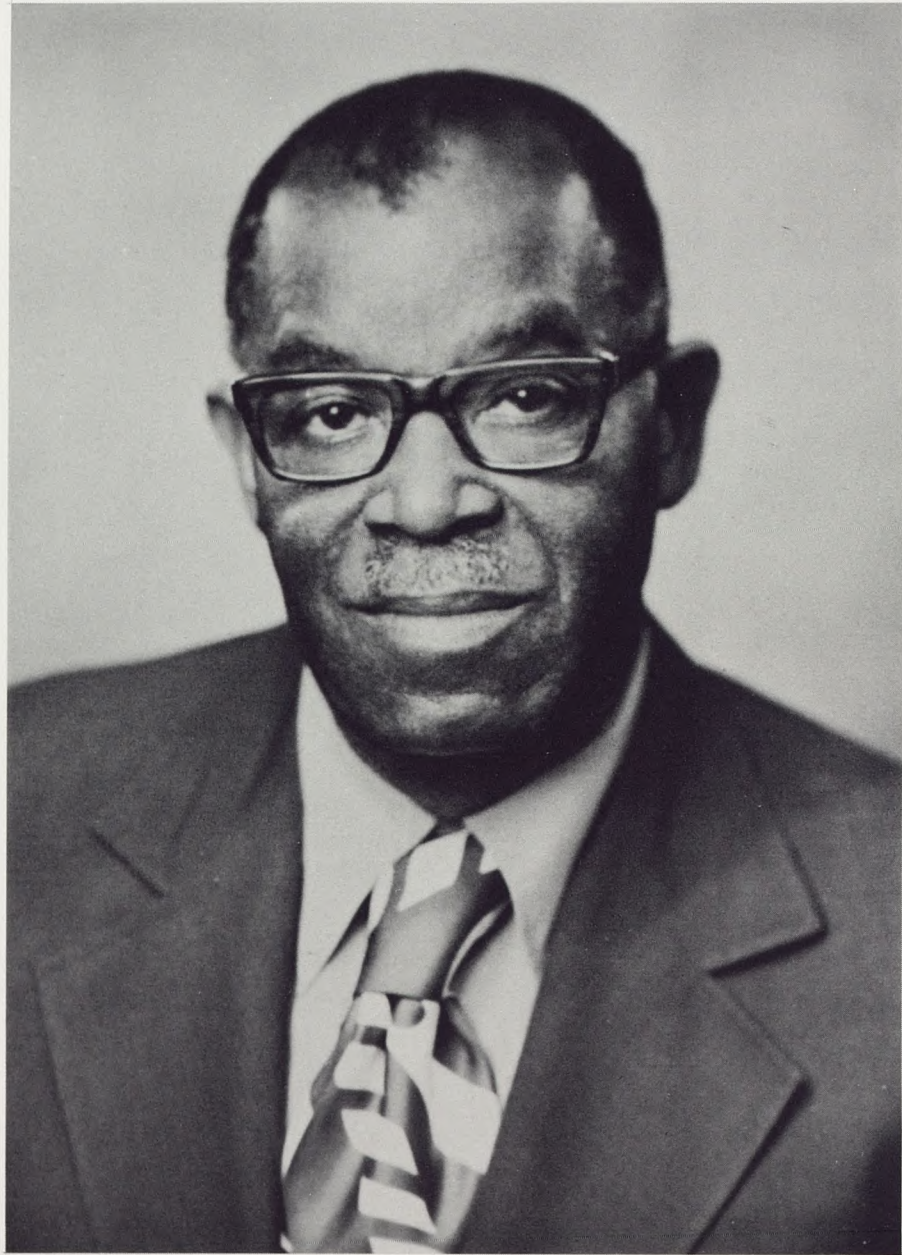
SPRING 1982

NUMBER 32

Carlos A. Perez, M.D. President of ASTR

Dr. Carlos A. Perez, Professor of Radiology and Director of the Division of Radiation Oncology at Mallinckrodt Institute, was elected President for 1982 of the American Society of Therapeutic Radiologists (ASTR). The foremost association of radiation therapists in the nation, ASTR, with a membership of over 1,000, directs its efforts to the highest possible standards of therapeutic radiology in patient care, medical education, clinical and laboratory research. It gives particular emphasis to strengthening the interchange between allied disciplines.





William E. Allen, Jr., M.D.
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Dr. William E. Allen, Jr. In Memoriam

Dr. William E. Allen, Jr., died of stomach cancer on December 31, 1981, at the age of 78. Dr. Allen was raised by a loving family in Pensacola, Florida; receiving his medical education at Howard University; and his postgraduate training, including radiology, at the Homer G. Phillips Hospital in St. Louis, Missouri. He is survived by his wife, Pal, a former head nurse at Homer G. Phillips Hospital. Dr. Allen leaves a legacy of accomplishments in the specialty of radiology, the community of St. Louis, and the many individuals by whom he will always be remembered.

Dr. Allen was an exceptional radiologist and a great personal leader. He was the first black diplomat of the American Board of Radiology, Fellow of the American College of Radiology, director of an approved residency program, chief of radiology in a military hospital, chairman of the section of radiology in the National Medical Association, and Gold Medalist of the American College of Radiology. His leadership talents were recognized by membership on the

Boards of Directors of the St. Louis Tuberculosis Society, American Cancer Society, Institute of Medical Education, National Association for the Advancement of Colored People (NAACP), Comprehensive Neighborhood Health Center, and Missouri Radiological Society. He published more than 40 scientific papers and presented numerous book reports and editorials to the literature. His service was recognized by the highest awards possible from the Homer G. Phillips Hospital, Howard University, St. Louis Chapter of the NAACP, American Cancer Society, National Medical Association, Masonic Lodge, and the A.M.E. Methodist Church.

Bill Allen believed in people and worked for the advancement of others. He developed funding for scholarships in St. Louis, Washington, D.C., and Africa. He was personally responsible for the placement of a Cobalt 60 unit in the John F. Kennedy Memorial Hospital in Monrovia, Liberia, Africa. He had an uncanny ability to get others (including this author) to work with him in

developing projects and people.

He is the only radiologist to have been named a Professor at both Washington University and St. Louis University. He took great satisfaction in teaching and presented a weekly conference to medical students at Washington University until three weeks before his death. His personal philosophy was illustrated by his response to a letter of congratulations after receiving the Gold Medal of the American College of Radiology in 1979: "My firsts represent nothing unusual to me. I saw the need for many things in the black community and I tried to do something about it." It is unlikely that any single radiologist can take his place; his goals will be continued by many friends, colleagues, and students.

Robert G. Evens, M.D.
Elizabeth Mallinckrodt
Professor and Head
Department of Radiology
Washington University School
of Medicine
Director,
Mallinckrodt Institute of
Radiology

Hyperthermia Treatment and Research Center

The Division of Radiation Oncology at Mallinckrodt Institute continues to be in the forefront of research and development in the field of hyperthermia as recently the hyperthermia treatment and research center took a tremendous step forward with the installation of a BSD-100 hyperthermia unit on the sixth floor of Barnard Free Skin and Cancer Hospital. The unit was purchased with funds from the Division of Radiation Oncology and the Advertising Federation of St. Louis' contributions of recent Gridiron proceeds.

The Division's latest thrust into clinical hyperthermia, i.e., the treatment of cancer by heat, will focus on combined therapy with hyperthermia and radiation. Studies have shown that heat is more apt to kill those cells that are deprived of oxygen and nutrients, have a low pH, or are in S-phase of the cell cycle — precisely the cell subpopulations that are usually resistant to radiation. It is only logical, then to combine these two modalities to achieve the maximum destruction of tumor cells.

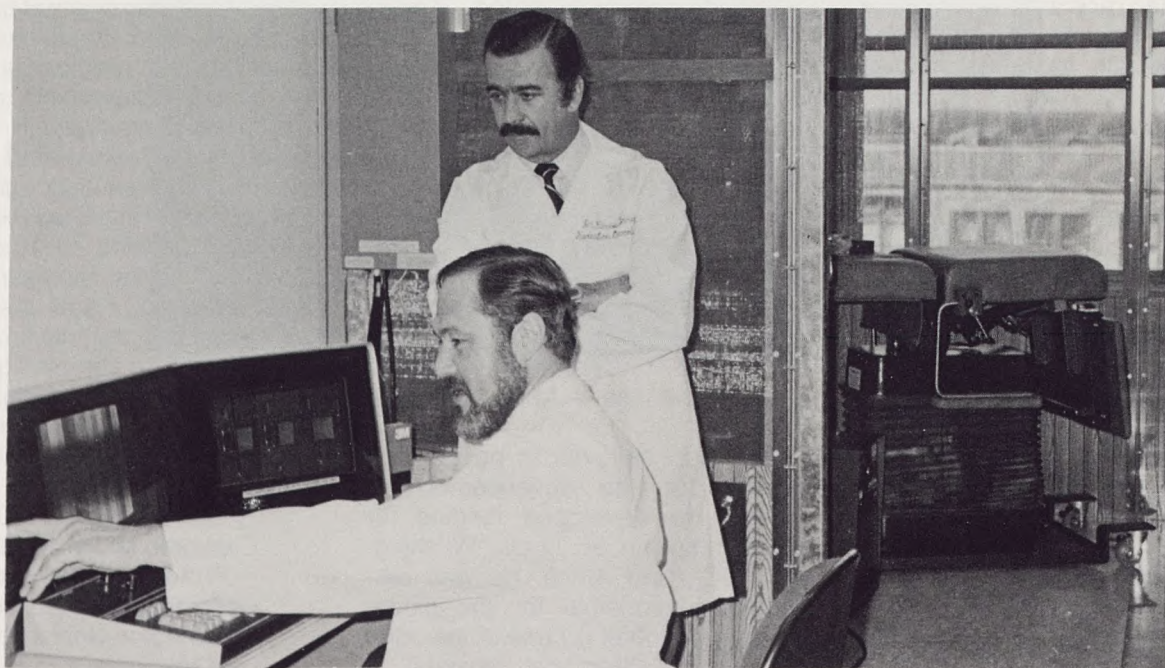
Dr. Perez reported at a recent meeting of the American Society of Therapeutic Radiologists the experience at Mallinckrodt Institute of Radiology with 107 lesions in patients treated over the past three years with irradiation and hyperthermia. Using relative rudimentary equipment, a 50% to 70% success rate was achieved on patients with recurrent epidermoid carcinoma of the head and neck, adenocarcinoma of the breast, melanomas and some soft tissue sarcomas. The majority showed prolonged tumor control. Although most of the patients had previously received radiotherapy, retreatment with radiation and heat was well tolerated with acceptable complications.

Hyperthermia's potential is exciting and while much of the research on clinical applications depends on the development of new state-of-the-art equipment, Dr. Carlos Perez, Director of the Division of Radiation Oncology, is hopeful that these needs will be met shortly.

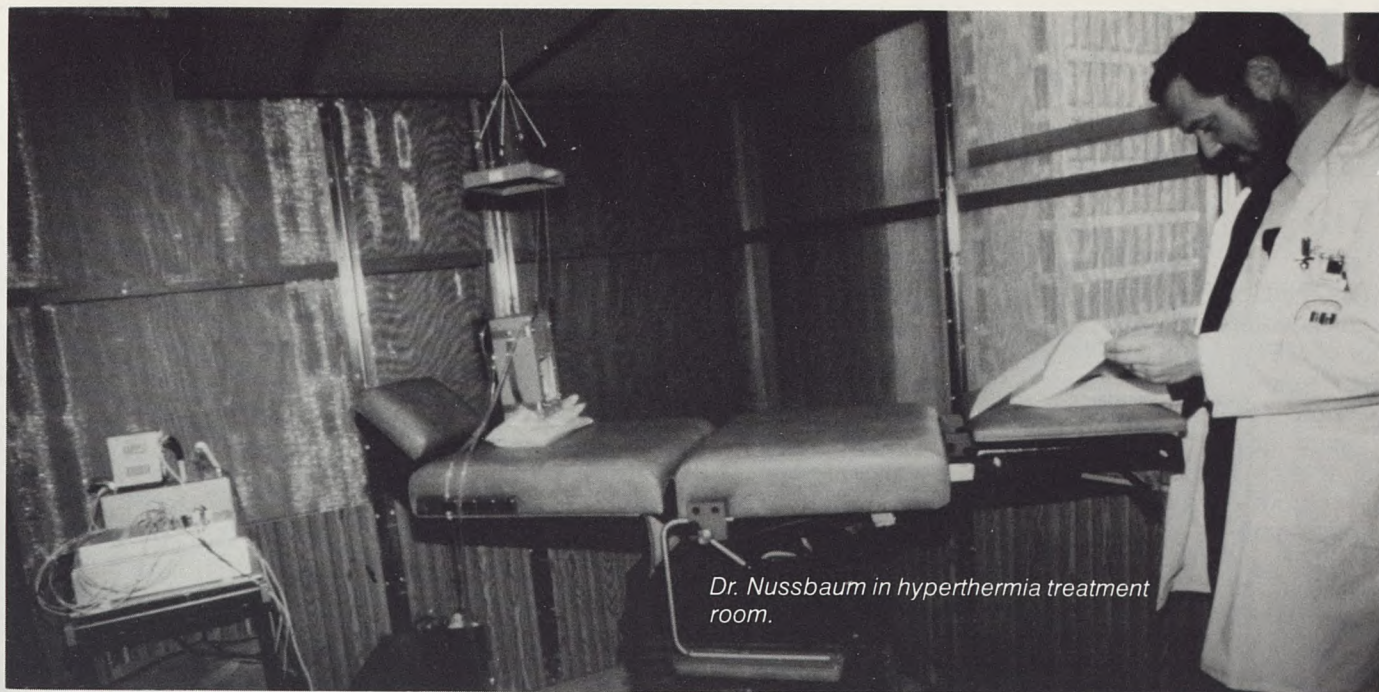
The new BSD unit will permit deep heating of the pelvis, abdomen, and

lung through the use of "annular phased array." This feature of the BSD-1000 consists of two adjacent "doughnuts," each with multiple microwave applicators, which produce regional deep heating. A screen outside the treatment chamber shows temperatures at up to eight points within the patient.

Recently, with the support of the Mary R.H. Sopher Fund, a hyperthermia ultrasound unit was acquired to enable the staff to treat a larger number of patients with deep-seated tumors. Both apparatuses have sophisticated thermometry systems which allow accurate tissue temperature measurement in as many as 12 simultaneous sites, and feature a very accurate feedback system to hold temperatures constant as well as the ready availability of temperature-time profile. Later on, space on the third floor of Barnard will augment the sixth floor suite, enhance the staff's research capabilities, allow three patients to be treated at a time, and function in conjunction with a multi-disciplinary oncology service.



Gilbert H. Nussbaum, Ph.D., seated, and Carlos A. Perez, M.D., at the operator's console, which controls and displays the temperatures at various points within the treatment volume, in new MIR Hyperthermia Treatment Center.



Dr. Nussbaum in hyperthermia treatment room.

The hyperthermia program continues to move along at a brisk pace. The professional staff, Dr. Gilbert Nussbaum, physicist, Dr. Stephen Sapareto, biologist, Drs. Bahman Emami and Carlos Perez, clinical radiation oncologists, in conjunction with Physics Section Chief, Dr. James Purdy, recently collaborated on blood flow studies. Employing a special 34 MV x-ray beam fabricated by Drs. Purdy and Nussbaum, the investigators explored how heat and radiation affect blood flow in normal and cancerous tissues. The team is also studying hyperthermia in combination with radiation and chemotherapy, evaluating effects on tumor and normal cells (especially those involved in the immune response) and optimizing treatment techniques in terms of time, temperature, and sequence. Dr. Sapareto will examine how hyperthermia affects cells as they progress through the cell cycle.

As researchers painstakingly examine theories which look promising but hold no guarantees, hyperthermia stands out as an agent of definite clinical benefit. The results of cancer research programs such as MIR's will have prompt effects on the realization of its full potential for patient treatment.



Right
James A. Purdy, Ph.D., at the Center's permanent display illustrating immobilization of radiotherapy patients.

MIR Experiments with Labeled Platelets

The Nuclear Medicine Research Laboratories located on the seventh floor of MIR are currently undergoing major renovation. Upon completion, the new facilities will include remodeled laboratories and offices as well as a camera room with an adjacent computer facility for carrying out experimental protocols with new radiopharmaceuticals. The research studies on the seventh floor are supported by four government grants: a section of the Stroke Program Project Grant (Principal Investigator Marcus E. Raichle, M.D.), a section of the Washington University Specialized Center for Research in Thrombosis Project (Principal Investigator Philip Marjerus, M.D.), and two contracts from the Department of Energy to develop new radiopharmaceuticals labeled with gallium-68 and various bromine radionuclides (Principal Investigator Michael J. Welch, Ph.D.).

The work carried out under the Stroke and Thrombosis grants is aimed at the development and assessment of radiopharmaceuticals for the *in vivo* detection of venous and arterial thrombi. Currently, indium-111-labeled platelets are being evaluated as a diagnostic agent for these thrombotic disorders. To date over 200 patients with clinical diagnoses of strokes, transient ischemic attacks, deep vein thrombi, arterial thrombi, and kinetic disorders have been studied with indium-111 platelets. The work with the labeled platelets also includes investigation of platelet deposition in various animal models and evaluation of the effects of various antiplatelet drugs upon platelet deposition.

The work with bromine radionuclides involves the development of radiopharmaceuticals which bind to tissues containing high levels of estrogen receptors. These receptors are present in approximately two thirds of all breast cancers, and tumors with high estrogen receptor levels tend to be more responsive to certain kinds of therapy. Two bro-

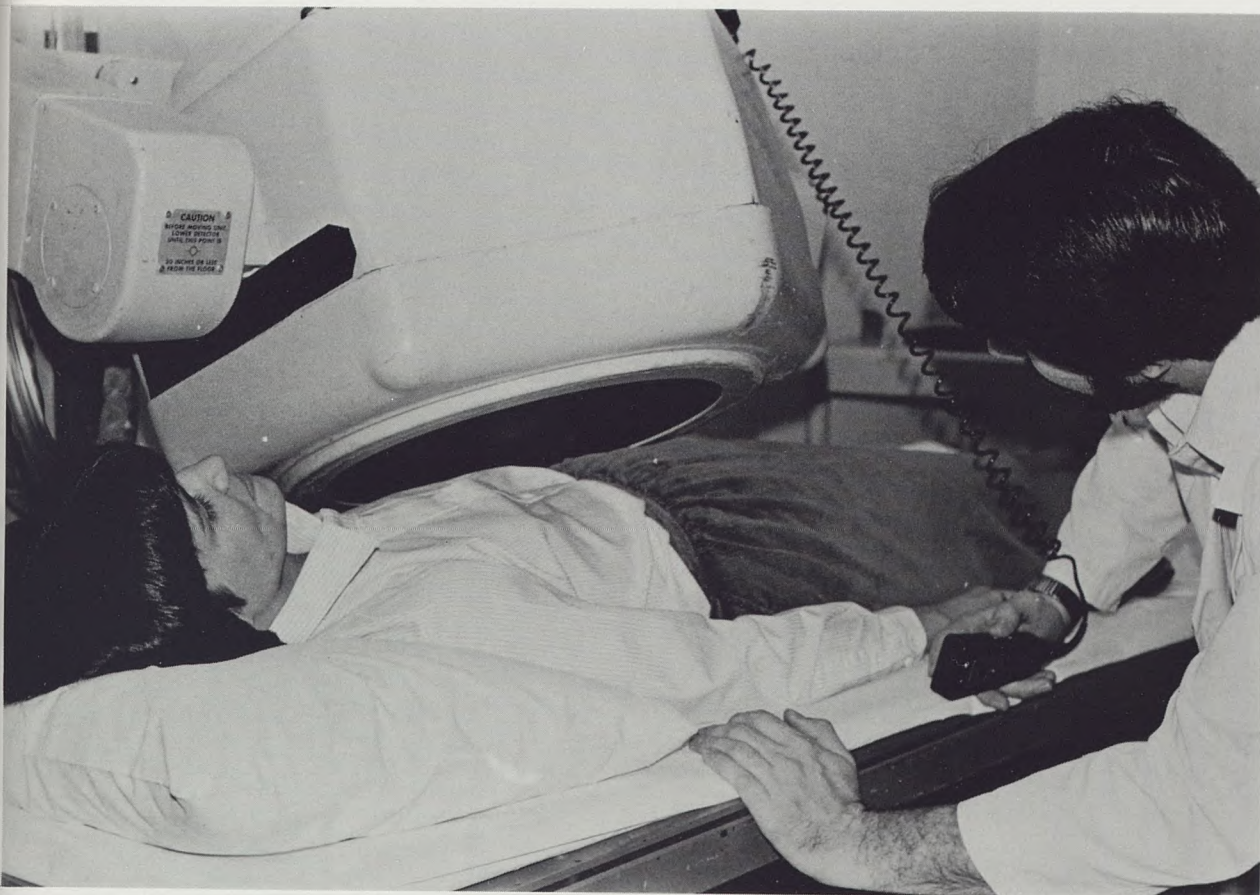
mine-labeled estradiol analogues have been studied extensively in animals, and preliminary patient data using these compounds labeled with the 57-hour half-lived bromine-77 are encouraging. The patient imaging studies using both labeled platelets and the brominated estradiols can now be carried out in the renovated camera room on the seventh floor.

The research with gallium-68 is aimed at developing a series of positron-emitting radiopharmaceuticals that can be produced without using one of the medical school cyclotrons. Compounds used for bone scanning, blood pool imaging, liver scanning, lung scanning, and myocardial infarction detection, have been prepared and studied. These compounds add to the radiopharmaceuti-

cals available for utilization with the Institute's PET devices.

Working in collaboration with Dr. Michael Welch and Dr. Barry Siegel, the personnel on the seventh floor and their projects include: Karen McElvany, Ph.D., bromine-77-labeled estrogens and gallium-68 radiopharmaceuticals; William Powers, Ph.D., indium-111-labeled platelets in neurology patients and animal models; Deborah Cunningham, Ph.D., labeled platelets in thrombosis patients; Carla Mathias, labeled platelets; Stephen Moerlein, graduate student, gallium and bromine radionuclides; Kevin Hopkins, nuclear medicine technologist, patient imaging studies and the gallium-68; and Scott Hagadorn-Freathy, gallium.





Above
Patient imaging in the new camera room.

Left
Drs. Karen D. McElvany and Michael J. Welch at the radiochromatogram scanner.



Right
Deborah A. Cunningham, Ph.D., left, and Carla Mathias, Senior Medical Research Technician, at work in one of the Nuclear Medicine Research Laboratories on the seventh floor of MIR.

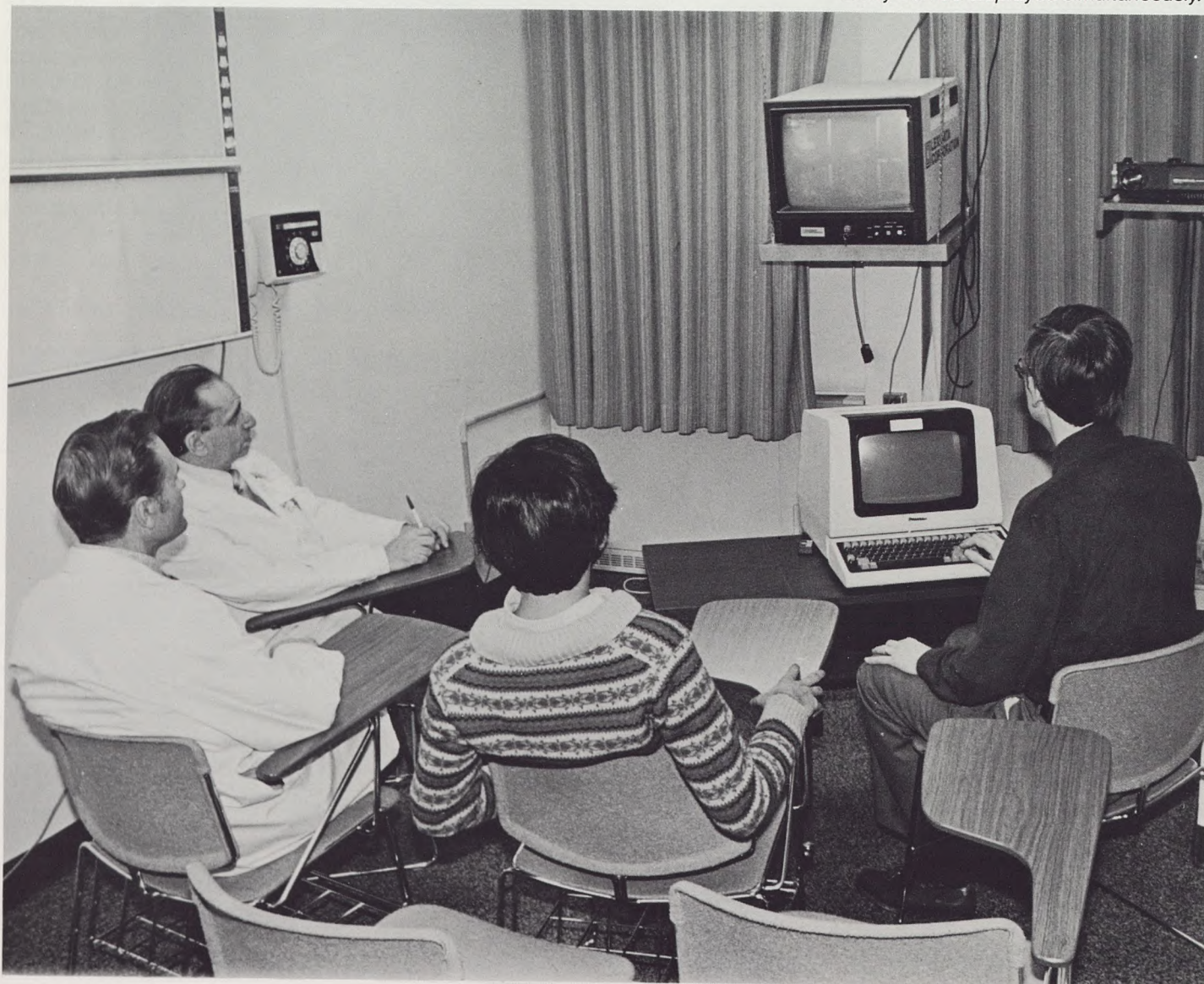
Applications of Digital Computers in Nuclear Medicine

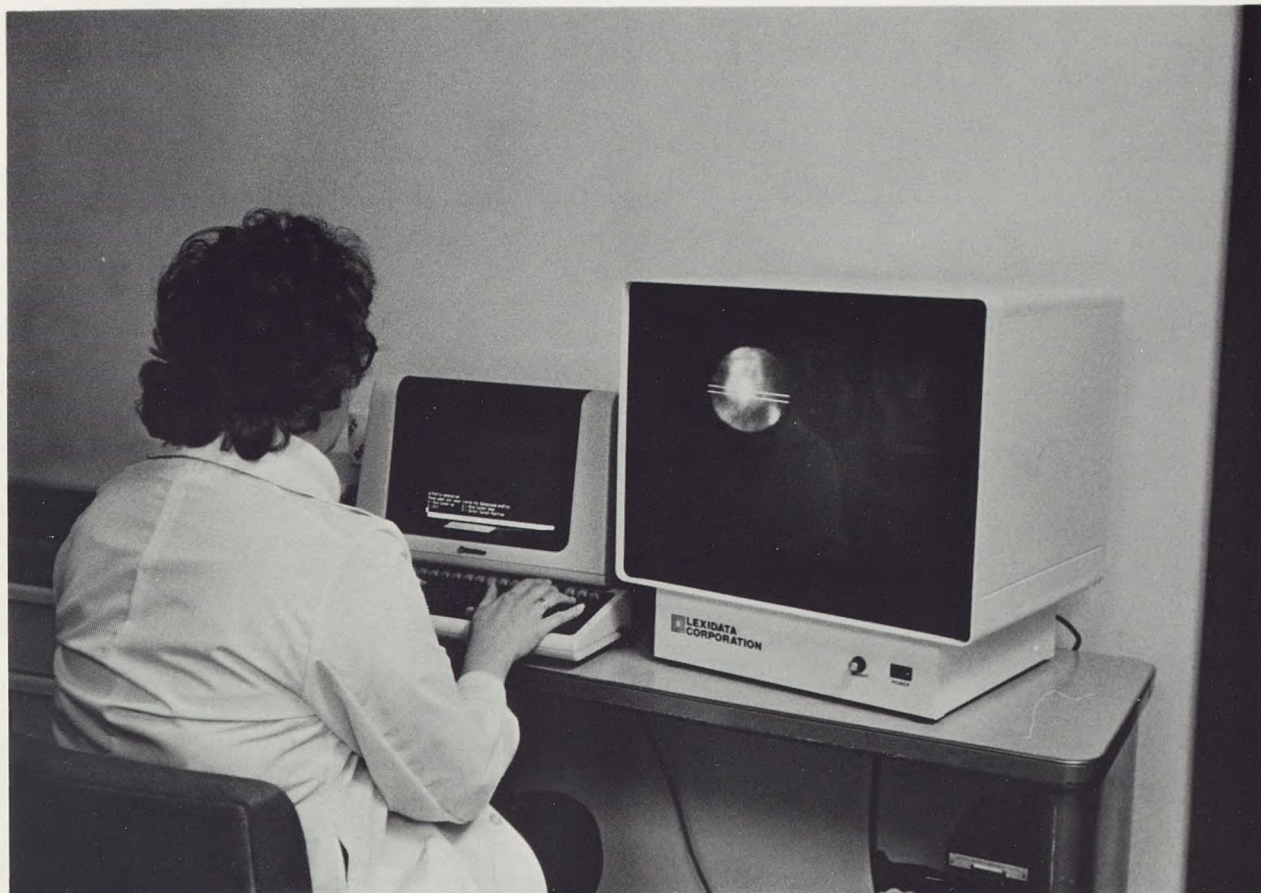
Right

The technologist selects the desired analysis program from a "menu" displayed on the computer terminal. The images appear on the video display system (on the right).

Below

The radiologist interprets the digital cardiac images displayed on the video monitor. Up to six images from a patient study can be displayed simultaneously.





In keeping with its strong commitment to clinical service, research, and teaching, the MIR Division of Nuclear Medicine under the direction of Dr. Barry A. Siegel installed in January 1981, a Digital Equipment Corporation PDP-11 computer equipped with a state-of-the-art video display system. Over the past year, Tom R. Miller, M.D., Ph.D., and K.S. Sampathkumaran, M.S., have integrated the computer and associated electronics with the Division's existing gamma cameras for use in clinical studies. Presently equipped with five digital computers, four of which are interfaced with gamma cameras for clinical studies, the Division uses the PDP-11/34 as a central computer for processing digital images transferred from the clinical area via floppy disks and magnetic tapes.

The central computer is run under a multi-user operating system (RSX-11M); both imaging and interpretation rooms are equipped with high quality video display systems. In

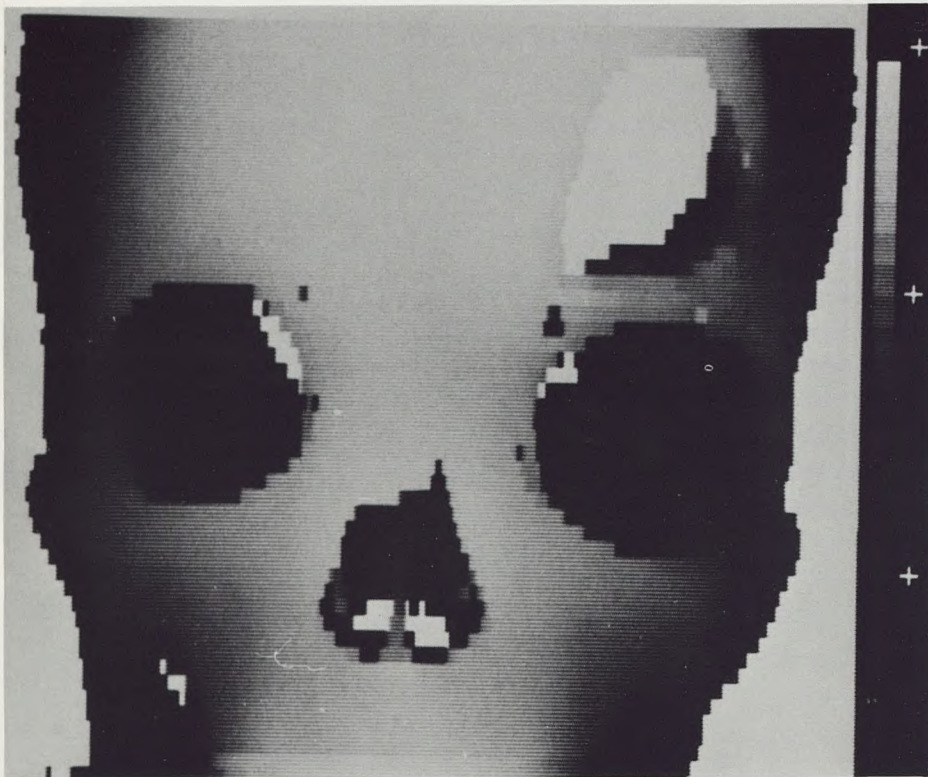
addition to enabling technologists and radiologists to process and interpret the digital images in an efficient manner, the system is also used for image processing research to improve the quality of diagnostic images.

Approximately fifteen gated-cardiac blood pool studies and thallium studies are performed each day in Nuclear Medicine. Three to four days of studies are stored in digital form on a high speed disc for immediate review by physicians. Digital magnetic tape, rather than film, is used for long-term storage.

According to Dr. Miller, the principal advantages of this computer-based system are the ability to process the digital images to improve diagnostic quality, the ready availability of the images to radiologists and clinicians, and potential substantial cost reduction. Through a close collaboration with Dr. Daniel R. Biello and cardiologists, Drs. Burton Sobel, Philip Ludbrook, and Edward Geltman, the Division has on-going re-

search projects to extract additional information about the heart through the application of advanced mathematical techniques.

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Left

Figure 2:
Reconstruction of the skull in a young child with a left frontal encephalocele using a computer graphics system.

Below

Figure 3:
Skull contours showing asymmetry due to polyostotic fibrous dysplasia in an adolescent.



Computers Aid in Craniofacial Surgery

Computer Aided Design and Manufacturing (CADAM) systems are widely used in the automotive, appliance, aircraft and many other industries. Engineers now utilize these sophisticated computer hardware and software systems to design and evaluate complex structures in 3 dimensions. Through recent years, McDonnell Douglas Corporation has pioneered the use of this new and revolutionary technology to design and build aircraft.

Some months ago, Dr. Michael Vannier at Mallinckrodt Institute of Radiology and Dr. Jeffrey Marsh, Director of the Craniofacial Institute at St. Louis Children's Hospital, found that this same computer-aided design technology could provide a better picture of deformities of the face and skull as well as a solution to their correction. They approached McDonnell Douglas with the idea of their using the company's CAD equipment to generate three-dimensional models of the human skull for planning corrective surgery. Offering full cooperation, MDC is now donating computer time and personnel to Drs. Vannier's and Marsh's project.

"In the past, with only a two-dimensional x-ray, a physician was forced to rely on his mental estimate of what had to be done to correct a complex deformity of the face," said A.E. Doelling, McDonnell Aircraft Chief Program Engineer and manager of the physicians' project. As the skull is not a series of straight lines or perfect angles, dealing with craniofacial deformities of the face and skull requires precise measurements of subtle contours. What is done to one side affects the appearance of the skin and symmetry with the opposite side.

A three-dimensional model allows the surgeon to view the skull, simulate the craniofacial surgical procedure and evaluate the entire skull as it would appear postoperatively. Planning surgery from ordinary x-rays requires difficult abstract in-

terpretations compared to the computer graphics approach which more closely resembles real life and is easier to explain to surgeons.

In order to obtain funding for their program, Drs. Vannier and Marsh are producing a movie using McDonnell Douglas' computers to illustrate the potential value of this pre-surgery analysis. The patients analyzed at MDC have had high resolution CT-scans of the facial structures at MIR. This data has been entered into the computer graphics system by Jim Warren, MCAIR design engineering unit chief, using automatic digitizing equipment in the Loft Engineering department. ("Loft" surfaces, computer terms for the outside surfaces of a plane, refer to the boat shape plans that early boat builders made in the loft above the building room.)

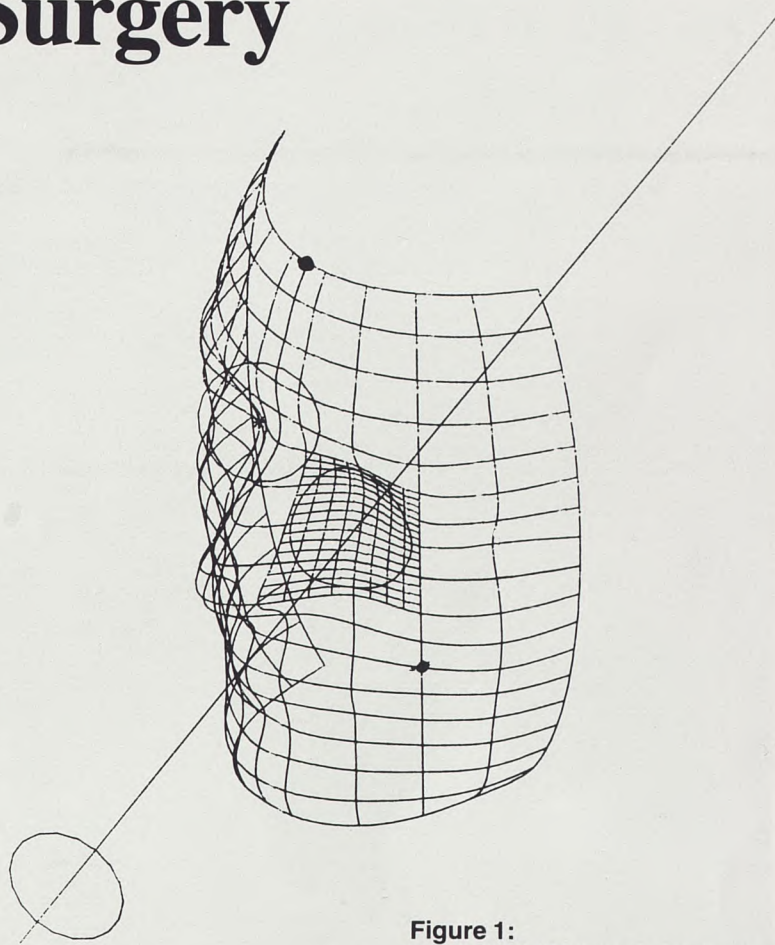


Figure 1:
Photo of CAD system screen showing optic axis in patient with blow out fracture of the left orbit.

A computer graphics three-dimensional model for use in producing the movie is formed using programs and display equipment for aircraft design.

McDonnell Douglas' help will provide years of time savings in introducing this computer-aided design technology to the medical community. Many physicians are not aware of this capability that can now be applied to their analyses of children's complex surgical cases before surgery.

The computer-graphic-digital techniques coincide with a growing trend toward digital radiography — whereby the computer and associated electronics are linked to conventional x-ray resulting in improved images, reduced film cost as data is stored in the computer, and reduced radiation to the patient.

Computer System for Monitoring Repeat Films

FILM REPEAT ANALYSIS WEST PAVILION 10 12-Jan-82													
ROOMS:	REASONS FOR REPEATS:							TOTALS:					
	Over exp.	Und- exp.	Posi- tion	Pro- cess	Anti- fact	Fog	Mo- tion	FILMS			EXAMS		
								Rpts	Total	%	Rpts	Total	%
1002 TOMOGRAPHY	0	0	0	0	0	0	0	0	0	0.0	0	0	0.0
1028 MAMMOGRAPHY	0	0	0	0	0	0	0	0	6	0.0	0	1	0.0
1029 G.I. STUDIES	0	0	0	0	0	0	0	0	15	0.0	0	2	0.0
1032 G.I. STUDIES	0	0	0	0	0	0	0	0	15	0.0	0	1	0.0
1033 G.I. STUDIES	0	0	0	0	0	0	0	0	0	0.0	0	0	0.0
1036 BONE/JOINT	0	0	0	0	0	0	0	0	16	0.0	0	4	0.0
1037A NEURO	0	0	0	0	0	0	0	0	0	0.0	0	0	0.0
1037B BONE/JOINT	0	0	0	0	0	0	0	0	0	0.0	0	0	0.0
1038 CHEST	0	0	0	0	0	0	0	0	0	0.0	0	0	0.0
1039 CHEST	0	0	0	0	0	0	0	0	8	0.0	0	4	0.0
TOTALS:	0	0	0	0	0	0	0	0	60	0.0	0	12	0.0

LAST EXAM REPEATED:

Req#: Time:
Code: Exam:
Room: Film size:
Reason:

Computer terminal display of a daily film repeat analysis.

PRC=02201					EDTL				FDX 2400		
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Mallinckrodt Institute has developed and installed a computer system to monitor and thereby reduce the percentage of films repeated for technical reasons. The concept for the system — the first of its kind in the country — was initiated in March 1981 as a manual operation in the MIR outpatient facility under the direction of Sharon Albertina, R.T., Supervisor, and Tom Hanson, R.T., Assistant Supervisor. Working in conjunction with the technology staff, Dr. Gilbert R. Jost, Associate Professor of Radiology, and Stephen Rodewald of the Diagnostic Computer Section were developing a computer system that would replace the manual operation in June 1981

and provide expanded information.

Collecting data on-line, and displaying on terminals up-to-the-minute totals broken down by exam type, exam room, and reason for repeat, the system revealed patterns of recurrence of technical problems in exam rooms. The results stimulated weekly in-service review sessions where technologists used the data to improve techniques affecting exposure, positioning, processing, and production of the artifacts and fogging. These sessions and other corrective measures resulted in a significant decrease in the percentage of repeat films. From June to November 1981, the average — which at 7.3% was already well be-

low the national average of 10% — was reduced to approximately 2.2%. Since repeat factors such as patient movement cannot be totally eliminated, the improved figure represents an average very close to the lowest attainable percentage of repeats.

Following this success in the outpatient facility, the film repeat computer system was extended throughout the Institute in January 1982. The data will provide a continuous basis not only for reducing the percentage of repeat films, but also for evaluating technology training, equipment performance, scheduling methods, and film usage.

*** REPEAT FILM ANALYSIS -- WEST PAVILION 10 ***

Technologist # 75 HANSON, THOMAS
 Requisition # C123456

EXAMS PERFORMED				* Enter data on repeats:			
Code	Exam	Film total	Room	* Code	Position	Film size	Reason
200	CHEST	2	1039	* 502	5	3	? 2
502	LUMBAR SPINE	6	1039				

REPEATED EXAMS		* Exam		* positions:		* Exam		* Film		* Reasons	
Code	Position	Film	Reason	1	2	3	4	5	6	7	for repeats:
200	PA	14x17	Motion	AP	AP spot	Lateral	Lateral spot	Oblique	Flexion	Extension	1 Overexposed
											2 Underexposed
											3 Positioning
											4 Processing
											5 Artifact
											6 Fog
											7 Motion

Computer terminal display of an exam repeat analysis.

PPC=10875 EITL FIX 2400

EXAM ROOM STATUS
 WEST PAVILION 10 12-Jan-82

ROOMS:	CURRENT STATUS:		TOTALS THIS YEAR:		
	Down time	Source of problem	Times down	Down time (hr:min)	% down time
1002 TOMOGRAPHY	OK		0		0.0
1028 MAMMOGRAPHY	OK		0		0.0
1029 GI STUDIES	OK		1	1:30	1.3
1032 GI STUDIES	OK		1	1:30	1.3
1033 GI STUDIES	OK		1	0:26	.3
1036 BONE & JOINT	OK		0		0.0
1037A NEURO	OK		0		0.0
1037B BONE & JOINT	OK		0		0.0
1038 CHEST	OK		0		0.0
1039 CHEST	OK		2	9:46	8.8

Computer terminal display of analysis of total room down-time in West Pavilion Outpatient Facility.

PPC=09301 EITL FIX 2400



MIR Christmas Party





The Director's Office Reports

Promotions

Dr. Louis A. Gilula to Professor of Radiology (effective 1/1/82).

Dr. Daniel R. Biello to Associate Professor of Radiology (effective 1/1/82).

Dr. Todd H. Wasserman to Associate Professor of Radiology (effective 1/1/82).

Dr. William G. Totty to Assistant Professor of Radiology (effective 3/1/82).

New Appointments

Dr. Gerald Edelstein, Instructor in Radiology, Musculoskeletal Section (effective 1/16/82).

Dr. Stephen F. Albert, Instructor of Clinical Radiology (effective 12/1/81).

Dr. Duan Liang, Research Associate in Cancer Biology in Radiology, Radiation Oncology (effective 10/14/81).

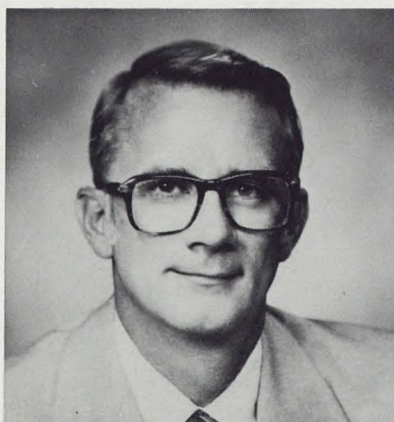
Dr. William J. Powers, Instructor in Radiology (primary appointment in Neurology), Radiation Sciences (effective 1/11/81).

Dr. Bo-Qi Liu, Research Associate in Cancer Biology in Radiology, Radiation Oncology (effective 11/9/81).

Mr. Kazuhiro Takahaski, Visiting Research Assistant in Radiation Physics in Radiology, Radiation Oncology (effective 9/1/81).

Dr. Dagmar J. Flentje, Research Associate in Cancer Biology in Radiology, Radiation Oncology (effective 1/1/82).

Dr. Michael Flentje, Research Associate in Cancer Biology in Radiology, Radiation Oncology (effective 1/1/82).



Dr. Ronald G. Evens

Change of Status

Dr. Robert J. Baglan to Clinical Assistant Professor of Radiology (effective 12/12/81). Dr. Baglan has entered private practice in therapeutic radiology at St. John's Mercy and Christian Northeast Hospitals.

Dr. Chandrakant C. Tailor to Clinical Assistant Professor of Radiology (effective 1/1/82). Dr. Tailor has joined a hospital-based radiology practice at Christian Hospital Northeast-Northwest.

Off Staff

Dr. Siddhesh Gowda, Assistant Professor of Radiology (primary appointment in Department of Medicine), has joined the staff of St. Luke's Hospitals as Director of the Cardiac Catheterization Laboratory (effective 10/31/81).

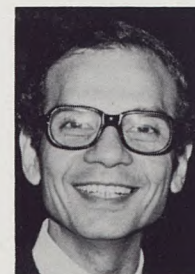
Satish C. Prasad, Ph.D., Assistant Professor of Radiation Physics in Radiology, Radiation Oncology (effective 10/31/81).

Dr. William E. Allen, Jr., died 12/31/81.

Deborah A. Cunningham, B.M.B.Ch., Research Associate in Radiology, Nuclear Medicine (effective 12/31/81).

Consensus Development Conference

Dr. Ronald G. Evens, Director of Mallinckrodt Institute of Radiology, served as chairman of a panel of experts in a Consensus Development Conference on Computed Tomographic Scanning of the Brain, November 4-6, 1981, at the National Institutes of Health, Bethesda, Maryland. The meeting was part of a Consensus Development program, initiated in 1977 by NIH Director Dr. Donald S. Frederickson, which periodically brings together biomedical research scientists, practicing physicians, consumers, and others in a public forum to evaluate and review the pros and cons of a given medical technology. Dr. Evens spoke on "Impact of Head Computed Tomography on Medical Practice and **Dr. Mokhtar Gado**, "Neuropsychiatric Disorders and Epilepsy," in a series of presentations to the panel.



Dr. Mokhtar Gado



Dr. James E. Marks

Following the two days of scientific presentations and open discussion, **Dr. James Marks** joined the panel of experts in developing a statement of consensus on the key issues of the conference which was read publicly for comments on November 6. Giving a ringing vote of confidence to the CT scanners, they agreed the 1,400 CT scanners used in this country "are not enough for the public to derive the full benefit of its potential."

CBT Society Course

Drs. Ronald G. Evens, Stuart S. Sagel, and Robert J. Stanley made presentations at the Fifth Annual Course in Computed Body Tomography sponsored by the Society of Computed Body Tomography and held at Innisbrook, Florida, on Feb. 15-18, 1982. Dr. Sagel, President of the Society, was the Program Director for the Course and presented "Mediastinum: Normal Anatomy and Pathology" and "The Larynx: Anatomy, Carcinoma Staging." Dr. Evens served as moderator of a scientific session and presented "Economic Implications of CT: Utilization, CON Legislation" and a workshop in CON Legislation and Applications. Dr. Stanley presented "Biliary Obstruction: Techniques, Applications," "Kidney: Non-neoplastic Condition," and "Abdominal Lymphadenopathy; Staging of Lymphoma."

International Symposium

An International Symposium, A Comparison of Computed and Conventional Tomography — Conflictual or Complementary?, was presented by the Department of Radiology of the University of South Alabama in New Orleans, Feb. 8-10, 1982. Dr. Ronald G. Evens served as essayist, group leader, session moderator (The Abdomen), and program committee member. Presentations by Mallinckrodt Institute staff included:

Dr. Ronald G. Evens

"The Socio-Economic Aspects of Computed and Conventional Tomography in the United States"

Dr. Bruce L. McClennan

"Conventional vs. Computed Tomography: the Retroperitoneum Revisited"

Dr. Michael Vannier

"Digital Conventional Tomography"

Dr. Welch Discusses Advances in Synthesizing Radio-Labeled Compounds

Dr. Michael J. Welch, Professor of Radiology and Chemistry at Mallinckrodt Institute and Washington University, was in New York recently as a guest on the NBC-TV show "The Health Field." In an interview conducted by NBC science editor, Frank Field and his daughter, Pamela Field, Dr. Welch discussed the advances made in labeling compounds for use in positron emission transaxial tomography. The interview was later aired in St. Louis on KPLR-TV, Channel 11.

In the last decade, the capabilities of positron emission transaxial tomography (PETT) as a diagnostic tool have been enhanced both by refinements in PETT equipment and by the development of more clinically desirable radionuclide compounds. Though a variety of compounds are in use that incorporate short-lived positron-emitting isotopes such as carbon-11, fluorine-18, oxygen-15, and nitrogen-13, further research is being conducted by chemists such as Dr. Welch to develop compounds with higher radiochemical yield and higher-specific activity that are also easily and efficiently produced.

Among the advances being made at Mallinckrodt Institute of Radiology in synthesizing radio-labeled compounds, Dr. Welch described those directed toward studies of brain glucose metabolism and its relation to such conditions as brain cancer, epilepsy, heart disease, stroke, senile dementia, mania, and schizophrenia. Since abnormal brain glucose metabolism gives indication of diseases and functional disorders before structural changes are evident, determination of abnormal metabolism offers information leading not only to early detection, but

also to treatment monitoring and possibly prediction of disorders. By imaging radiolabeled glucose as it proceeds through the metabolic process, PETT provides a means for quantitatively measuring the levels of glucose utilization per minute and thereby reveals any abnormality of metabolic function.

A research group headed by Dr. Welch, ten years ago, was the first to develop a photosynthetic method to incorporate carbon-11 labeled carbon dioxide into natural glucose then automate the method to produce labeled glucose for human study. Though the product produces good results, because of its low yield coupled with the rapid metabolism of its carrier, glucose, studies must be performed very quickly, Dr. Welch pointed out. He and others are now exploring another approach to tracing glucose metabolism in the brain that involves the use of labeled glucose analogs transported and distributed through the body like glucose but which remain in the brain after the first step in their metabolism (phosphorylation). The distribution of the accumulated phosphate measured against a biomathematical model of glucose consumption reveals the abnormal metabolic function.

In addition to glucose studies, Dr. Welch discussed the significant progress he has made in the preparation of fluorine-18-labeled haloperidol with high radiochemical yield and high specific activity. This compound is particularly useful in locating and identifying dopamine receptor sites in the brain. The data can then be correlated with specific disorders.

Guest Faculty/Visiting Professors/Meetings

Robert J. Stanley, M.D., served on the faculty of the following postgraduate radiology courses:

- University of Connecticut, (Body CT), Stratford-on-Avon, England, Sept. 20-26, 1981.
- Emory University, (Uroradiology), Atlanta, Oct. 23-24, 1981. (Also presented a paper on "Evaluation of the Biliary Tree.")
- Medical College of Wisconsin, (Computed Tomography), Milwaukee, Nov. 6-7. (Also Visiting Professor.)

Stuart S. Sagel, M.D., served on the faculty of the following postgraduate radiology courses:

- Harvard University, (Computed Tomography), Boston, Sept. 14-16, 1981.
- ACR Course, (Chest Radiology), Las Vegas, Sept. 21-25, 1981
- Computed Body Tomography Seminar, (nine lectures), Steamboat Springs, Jan. 23-30, 1982.

Mokhtar Gado, M.D., served on the faculty of two postgraduate courses:

- Harvard University, Boston, Sept. 8-12, 1981: "Anatomy and Functional Anatomy of the Brain"; "The Use of Metrizamide in CT for Intracranial Conditions"; and "CT of the Spine."
- Rush Presbyterian Medical Center, Chicago, Oct. 16-18, 1981: "Use of the CT in the Diagnosis of Paranasal Sinuses' Diseases and Facial Structures."
- Dr. Gado gave an "Update on Neuroradiology" at the annual meeting of the paraplegic Society in St. Louis, Sept. 17, 1981.

G. Leland Nelson, M.D., was Visiting Professor at the Medical College

of Wisconsin, Sept. 25-26, 1981, and Michigan State University, Feb. 2, 1982.

Gilbert H. Nussbaum, Ph.D., presented "Physical Aspects of Hyperthermia" at Yale University, Feb. 4, 1982.

Carlos A. Perez, M.D., made presentations at the following meetings: New York Roentgen Society Meeting and Oncology Seminar, NYC.

Medical Center, New York City, Feb. 22-24, 1982: "Radiotherapeutic Principles and Applications" and "Radiation Therapy in Management of Lung Cancer."

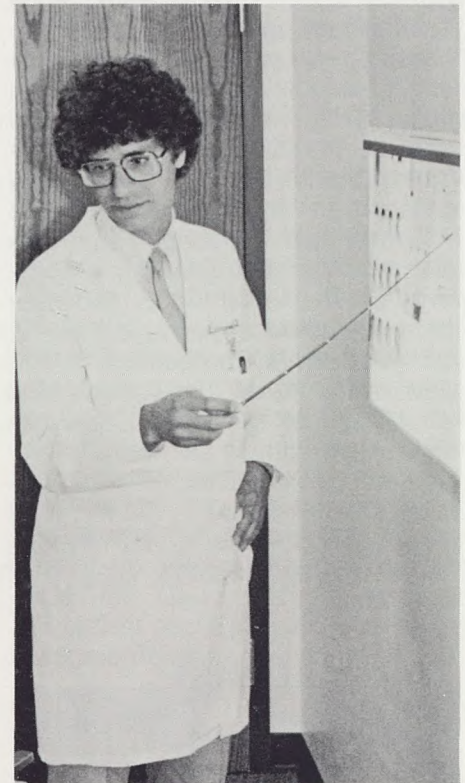
Mt. Sinai Medical Center, Feb. 22, 1982: "Clinical Applications of Hyperthermia."

Honored

Barry A. Siegel, M.D., Professor of Radiology and Director of the Division of Nuclear Medicine, was named a 1981 Fellow in the American College of Nuclear Physicians at its midwinter meeting in Chicago.

The College has more than 1,200 members and is charged with fostering the highest standards in nuclear medicine, consultation, and service as well as advancing the specialty through study, education, and improvement of the socio-economic aspects of nuclear medicine.

Dr. Siegel was chosen a Fellow by the College's Board of Regents on the basis of his superior competence, integrity, and maturity as a nuclear medicine physician.



Dr. Siegel Appointed to Advisory Committee

Barry A. Siegel, M.D., Director of the Division of Nuclear Medicine, was recently reappointed to the Radiopharmaceutical Drugs Advisory Committee of the Food and Drug Administration (FDA). He previously served on this committee from 1974-77 and has been a consultant to the FDA's Bureau of Drugs since 1972.

The 11-member committee of experts in the fields of nuclear medicine, radiology, statistics, and related medical disciplines makes appropriate recommendations to the Commissioner of Food and Drugs after evaluating the safety and effectiveness of marketed and investigational radiopharmaceuticals and radiological contrast agents.

SUPDATE

Conferences — Symposia — Workshops

Patrick R.M. Thomas, M.D., presented "Combination Chemotherapy for Medulloblastoma" at a meeting on Conflicts in Pediatric and Adolescent Oncology at Niagra Falls, Aug. 31-Sept. 1, 1981.

James A. Purdy, Ph.D., presented "Dosimetric Study of Electron Arc Therapy for Chest Wall Irradiation" at the Electron Dosimetry and Arc Therapy Symposium in Madison, Wisconsin, Sept. 10-11, 1981, and "Current Treatment Planning Techniques — A Review of Methods and Algorithms in Radiation Absorbed Dose Calculation and the Role of CT" at the Symposium on Computed Tomography in Radiotherapy in Washington, D.C., Sept. 18-19, 1981.

Bahman Emami, M.D., attended a symposium on CT in Radiotherapy in Arlington, Virginia, Sept. 18-19, 1981.

Todd H. Wasserman, M.D., received a travel grant from Varian Associates for the Conference on Chemical Modification: Radiation and Cytotoxic Drugs, in Key Biscayne, Florida, Sept. 17-20, 1981. At this Conference, he served on the organizing committee for the Committee of Radiation Oncology Studies and chaired a session on the pharmacology of radiosensitizers.

Dr. Wasserman presented lectures at several other conferences and workshops:

"Controversies in the Management of Hodgkin's Diseases," Jewish Hospital Tumor Conference, Oct. 21, 1981.

"Surgery, Radiation and Chemo-

therapy in Limb Sparing Therapy for Soft Tissue Sarcomas of the Extremities," Joint Medical Meeting of Jewish Hospital of St. Louis and Rambam Medical Center, Technion-Israel Institute of Technology, Haifa, Israel, Nov. 3, 1981.

"Non-Hodgkin's Lymphomas" Greater St. Louis Society of Radiologists, Nov. 24, 1981.

"Management of Malignant Neoplasias of the Liver — Conventional Irradiation," Cancer Workshop, MIR, Dec. 3, 1981.

"Hodgkin's Disease — Radiotherapy" Tumor Conference, Christian Hospital N/E-N/W, St. Louis, Jan. 27, 1982.

Mokhtar Gado, M.D., presented two papers, "Blood Volume" and "External and Internal Standards for Measurements" during a workshop on Dynamic CT in Konstanz, Germany, Oct. 3-8, 1981.

G. Leland Melson, M.D., presented three lectures at the Second Annual St. Louis University Ultrasound Symposium on Oct. 22-24, 1981.

Jashbhai I. Patel, M.D., presented "Epidural Venography" at the Symposium on Low Back Pain organized by the Department of Orthopedic Surgery of Washington University and held in Wohl Auditorium, Dec. 12, 1981.

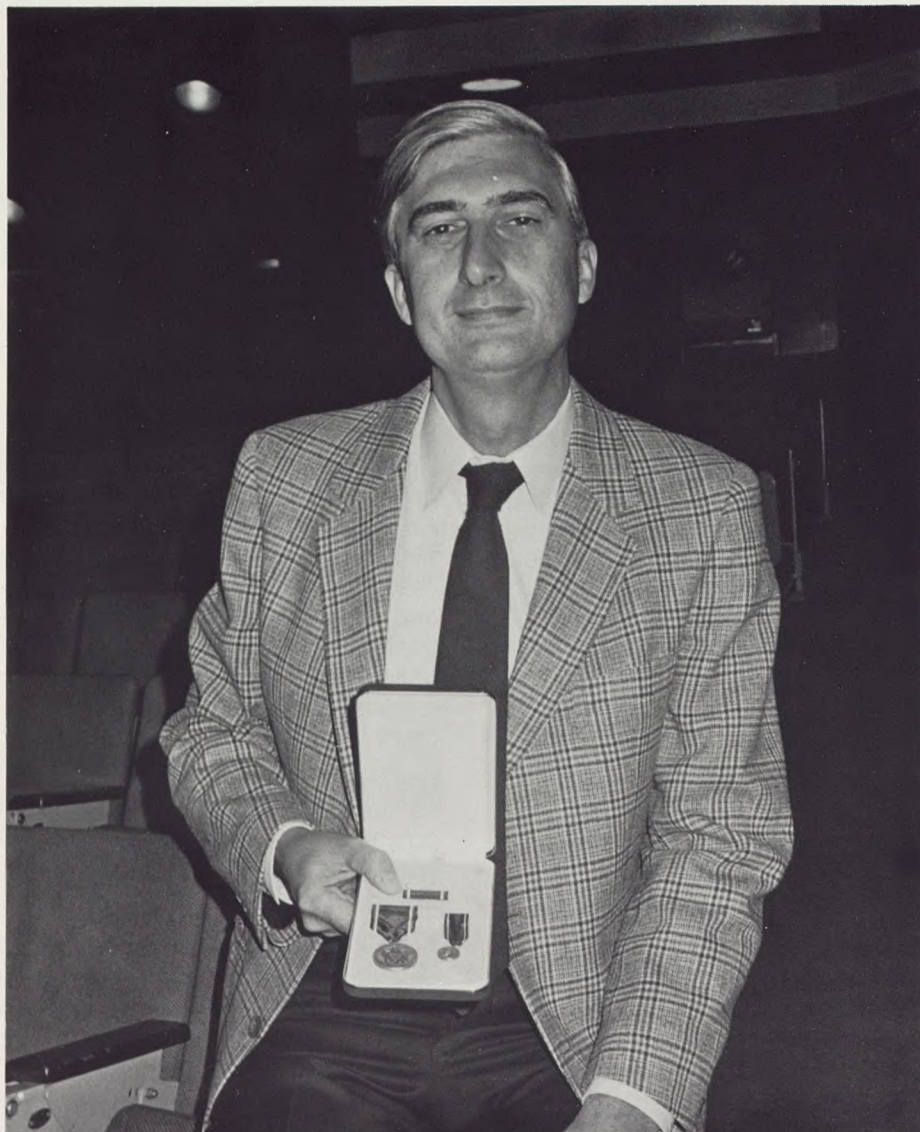
Glen P. Glasgow, Ph.D., and Carlos A. Perez, M.D., attended the South Eastern Cancer Study Group Annual Meeting in Atlanta, Georgia, on Jan. 12, 1982. Dr. Glasgow presented: "Quality Assurance in Radiotherapy Protocols in the SECSG."

Carlos A. Perez, M.D., Bahman Emami, M.D., and Seymour Fox, Ph.D., attended the Radiation Therapy Oncology Group Meeting at the Radisson Hotel in St. Louis Jan. 20, 1982. Dr. Fox presented "The Use of the Computer in a Clinical Setting" and Dr. Emami presented two research proposals: a study of high dose radiotherapy in lung cancer and a study of hyperthermia for the treatment of deep seated tumors.

Robert J. Stanley, M.D., presented "CT of the Mediastinum" at the Symposium on CT sponsored by the University of Munich, held in Seefeld, Austria, Jan. 27-30, 1982.

Fred J. Hodges, III, M.D., presented "CT in Lumbar Disc Disease" at the 12th Annual Aspen Radiological Conference in Aspen, Colorado, Feb. 23, 1982.

Louis A. Gilula, M.D., presented "CT of the Pelvis" and "CT of Trauma" at the Fifth Annual Skeletal Symposium in Sun Valley, Idaho, March 7-12, 1982.



Commendation Medal Dr. James W. Debnam

Dr. James W. Debnam (1965-70), Assistant Professor of Clinical Radiology at MIR and a member of the Christian Northwest Hospital Group, was called to two weeks active duty as a Reserve Corps Officer September 2, 1981. Assigned to the North Krome Haitian Processing Center, he was appointed Acting PHS Coordinator and Chief Medical Officer from September 2-5, during which time a major riot occurred at the Camp

resulting in numerous injuries both to Haitian entrants and staff. Dr. Debnam implemented the Disaster Plan of the Clinic and immediately initiated emergency medical triage. He was awarded the U.S. Public Health Service Commendation Medal for his professionalism as a physician and administrator in implementing the Disaster Plan, as well as for his devotion to duty.

Elected

Barry A. Siegel, M.D., was elected to the Board of Trustees of the Society of Nuclear Medicine. This governing body supervises and directs all business and property affairs of the over 1,200 member organization. He has also been appointed Vice-Chairman of the Commission on Nuclear Medicine for the American College of Radiology.

Committees

Todd Wasserman, M.D., will serve on three committees in 1982: the Scientific Program Committee of the American Society of Therapeutic Radiology, the Local Arrangements Committee of the American Society of Clinical Oncology, and the General Clinical Research Center Advisory Committee of Washington University.

James A. Purdy, Ph.D., was elected to serve as Chairman of the Radiation Therapy Committee of the American Association of Physicists in Medicine, Jan. 1, 1982.

Gilbert H. Nussbaum, Ph.D., will serve as Chairman of the General Medical Physics Committee of the American Association of Physicists in Medicine and will be instrumental in the formation of the Task Group on NMR Imaging.

John M. Bedwinek, M.D., is a member of the Committee on Radiotherapeutic Development of the American College of Radiology. This committee looks at present and future needs for radiotherapy to determine whether or not current training programs are meeting these needs.

James A. Purdy, M.D., was elected to serve as Chairman of the Radiation Therapy Committee of the American Association of Physicists in Medicine, Jan. 1, 1982.

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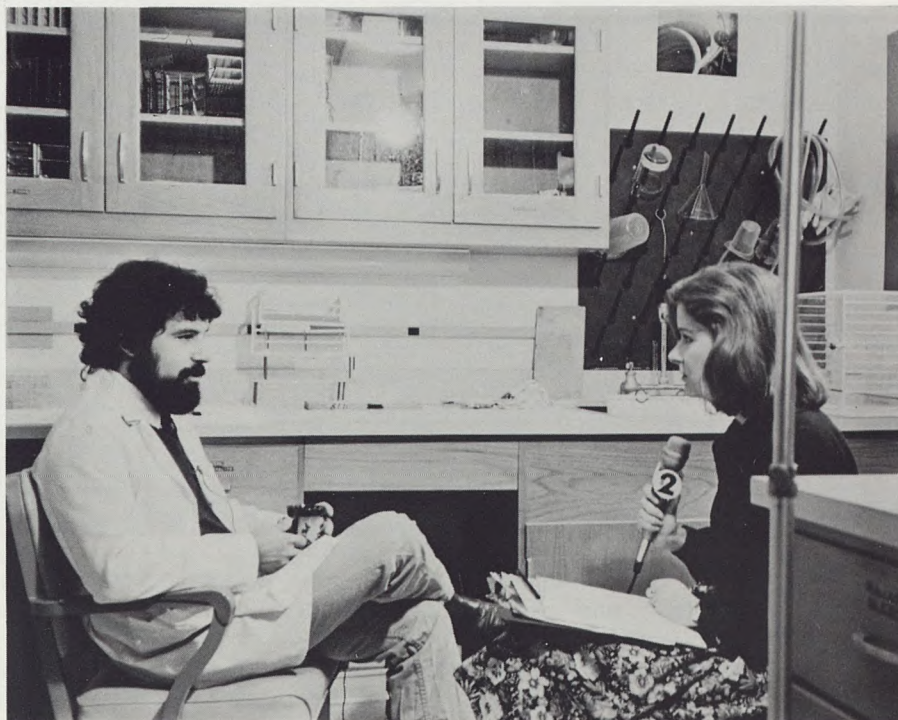
TV Interviews

Dr. Stephen Sapareto, Ph.D., the recipient of a \$215,000 grant to study "The Effect of Hyperthermia on Tumor Macrophages," was interviewed by Aviva Diamond of KTVI-TV on December 21, 1981, concerning his research on the tumoricidal capabilities of the host immune system in response to heat. Dr. Sapareto explained some of the methods used in evaluating the effect of heat on the tumor killing mechanism of host defense cells (macrophages), especially on macrophage activation, infiltration into tumors, and proliferation. He also demonstrated a technique used in applying hyperthermia to tumor-bearing laboratory mice. The research at MIR is intended to provide new fundamental approaches to the immunotherapy of cancer and further our understanding of the interaction between the immune response and hyperthermia for the treatment of cancer.

On November 25, 1981, **Dr. Bruce Walz**, Assistant Professor of Radiology, Division of Radiation Oncology, and Dr. Ira Kodner from the Section of Colorectal Surgery at Jewish Hospital appeared with Al Wiman on KMOX-TV News to discuss the endocavitary radiation therapy unit being used at Jewish Hospital in the management of rectal cancer.

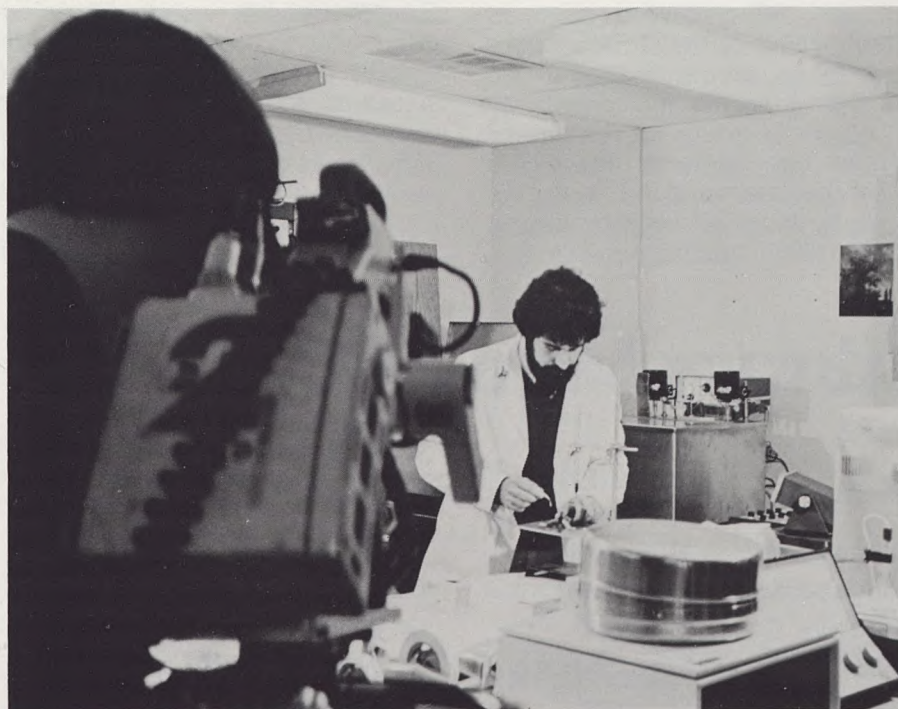
Radio Series

Drs. Carlos A. Perez, Gilbert H. Nussbaum and **Bahman Emami** discussed hyperthermia research and Mallinckrodt's new Hyperthermia Treatment Center in a five-part KMOX radio series, Oct. 19-23, with award winning medical reporter Dave St. John.



Dr. Stephen Sapareto, Ph.D., left, discusses the effect of hyperthermia on the body's immune system with Aviva Diamond of KTVI-TV.

Tumor-bearing mice receive hyperthermia treatment.



MIR Book Review Program

Book Reviews

An increasing number of new books on radiology and its rapid change and growth are currently being published. As a result, a system of book reviews was recently initiated at Mallinckrodt Institute to disseminate information on new books acquired each month by the MIR Staff Library.

Dr. Robert Koehler, the radiologist overseeing the library's operation, and Mrs. Bettye Thomas, staff librarian, select books for purchase, often at the suggestion of staff and residents. Radiologists, from junior residents to professors, have readily agreed to review new books in fields which interest them. In many cases, volunteers to review a book have come forth before the book has actually arrived.

The reviews are each a few paragraphs in length and include such items as the nature of the material covered, the strength and weaknesses of the book, and the ease with which it can be read. There are comments on the number and quality of illustrations and diagrams. Each reviewer is asked to comment on the level of training for which the book is likely to be most appropriate.

Every three months Mrs. Thomas distributes a newsletter to MIR residents and staff containing reviews of recently acquired books. New books are kept on a special shelf in the library for a few months so that they can be easily examined. A file of all the past book reviews (now 24) is kept in the library and is available for review by those wishing to select a book to read or purchase.

Wilner, Daniel: Radiology of Bone Tumors and Allied Disorders, Vol II.

After struggling through many dry hours with Greenfield, this volume was a surprisingly easy-reading bone and joint text. The second of four volumes by Daniel Wilner, Vol. II covers metabolic bone disease, tumor-like disorders such as fibrous dysplasia and pagets, and sclerosing bone disorders. Being a four volume set, subjects are covered in great detail. As an example, Greenfield spends 13 pages and 28 radiographs on hyperparathyroidism while the corresponding chapter in Wilner is 95 pages and contains 185 radiographs, several charts, diagrams, photomicrographs, and has about 300 references in the bibliography.

The book contains a great deal of pathologic correlation and also spends a lot of time on the differential diagnoses of various radiographic appearances. This aspect helped me put various findings in perspective and is something I have found lacking in some other texts I'm familiar with. The illustrations and diagrams are especially good. The radiographs are reproduced well. Even though it is easily read and understood, the book is probably a bit lengthy as a first text, but it is well suited to the radiologist-in-training for an in-depth reading on a particular subject. It should also function well as an excellent reference for resident and staff alike.

Pat Neeley, M.D.

Ring and McLean: Interventional Radiology, Principles and Techniques.

This is an outstanding textbook illustrating and describing a variety of modern interventional techniques. It covers such topics as biliary tract procedures, percutaneous transluminal angioplasty, extravascular balloon dilatation, angiographic management of hemorrhage including embolization, intervention uro-radiology, and percutaneous biopsy and drainage procedures. It is extremely comprehensive and informative in all of these areas, particularly PTA and biliary procedures. However, it is much more than a "cook book" text. A major strength is the practical yet aggressive approach to common diagnostic and therapeutic problems. The numerous diagrams are excellent, and the majority of radiographs are very good. It is easy to read, and could be enjoyed by anyone with some basic familiarity with angiography and other special procedures. I would highly recommend this book especially to anyone beginning to perform interventional radiology.

Jill White, M.D.

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A donation to Mallinckrodt's Library Memorial Fund is a meaningful way to observe a birthday, an anniversary, the recovery from an illness, or the memory of a loved one.

Gifts may be sent to:

Library Memorial Fund
Mallinckrodt Institute of Radiology
510 South Kingshighway
St. Louis, Missouri 63110



Pictured from left are Diaz Lecturer, James A. Mom, President-elect, ASRT; Michael D. Ward, R.T., B.S., President 4th District MSRT; and Armand Diaz, R.T., R.N.FASRT.

Ninth Annual Diaz Lecture

James A. Mom, R.T., President-Elect of the ASRT, presented the Ninth Annual Diaz Lecture on November 12, 1981 in Scarpellino Auditorium at Mallinckrodt Institute of Radiology. Mr. Mom, who has been the radiology administrator at Grossmont District Hospital in LeMesa, California, since 1978, has been actively involved in radiologic technology for 21 years and directly employed in radiology administration for over 15.

MSRT

The Missouri Society of Radiological Technologists was held at Tan Tara, Lake of the Ozarks, Oct. 28-Nov. 1, 1981. From MIR, those elected officers were: Theresa Girresch, R.T., Secretary, and Robert A. Fedlhaus, R.T., 4th District Representative.

The technical agenda included the following contributions from MIR technology staff, members and students:

A leader in both state and national organizations, Mr. Mom was president of the California Society, Director of ASTR Region I, and was appointed by former Governor Ronald Reagan to serve for four years on the California State Radiologic Technologists Certification Committee. As president-elect of ASRT and president of AHRA Western Region, Mr. Mom is serving concurrently on the national boards of both organizations.

Technical Scientific Exhibits:

1st Place Award — "Interventional Radiography Coronary Perfusion," Norman Hente, R.T., Robert Feldhaus, R.T.

Student Scientific Exhibits:

1st Place Award — "Hip Me With Your Best Shot," Mary Chatman, Natalie Clay.

For the Diaz Lecture, "The Applications of Computers in Medicine — An Overview," Mr. Mom discussed the utilization of computers in the business, clinical, and technical aspects of patient care. In his particular emphasis on the application of computers in radiology, he reviewed computed tomography, digital radiography, fluorography, positron emission transaxial tomography, radiation therapy treatment planning, and other modalities.

3rd Place Award — "A Tip on the Scale," Tamara Lehmkuhl, Deborah A. Crowe.

Student Essay Competition:

2nd Place Award — "New Oral Contrast Agents," Cathy Bitner.

3rd Place Award — "The New Image — Digital Radiography," Robert Knapp.

“Our Patients”



Richard and his 4-year-old sister, Becky, who often accompanied him to MIR for his radiation treatments.

Richard Turngren is a typical 10½ year old boy. His favorite things? To: “go down to the creek and fish for catfish” — “ride my bike across the low water bridge” — “hunt rabbits in the backyard” — “go to church camp” — “watch St. Louis Blues games” and “play with my friends at recess!”

But for the past six weeks Rich’s daily routine was not that of a typical 10½ year old. Instead, he got up early each morning; ate breakfast, “not greasy or sweet stuff because it hurt my chest”; and put on warm clothes for the 41 mile drive with his mom to St. Louis from their home in Hillsboro, Missouri. That afternoon, on the return trip, Rich, feeling tired and weak, would have to rest in the back seat of the car. Soon after returning home, his tutor arrived at Rich’s house to help with his school work.

Some days Rich found it harder than others to make the trip — when he felt tired and listless from a 28 lb. weight loss or if he suffered one of

his frequent spells of nausea. But he determinedly kept on schedule — because Rich is waging a valiant fight against cancer.

Rich was a happy fifth grade student in his hometown of Hillsboro when late last October he developed pains in his right shoulder blade, so intense that it kept him awake at night. Alarmed by the symptoms, his parents, Ruth and Kenneth Turngren, took him to St. Louis the Friday after Thanksgiving for x-rays and a CT scan. By the following Wednesday the Turngrens learned that Richard had a malignant tumor on his spine which required immediate surgery as a first line of attack. The next day Rich was admitted to St. Louis Children’s Hospital for a complete work-up of x-rays and bone marrow tests. As the family stood by for a final diagnosis, Dr. Martin Bell performed surgery on Friday at St. Louis Children’s Hospital to remove as much of the tumor as possible.

“Needless to say, it was an upsetting time for us. Everything

happened so quickly, it was like a cyclone,” said Mrs. Turngren. “But everyone was so kind — Rich’s nurse, Debbie Edgerton — Dr. Bell — all the staff at Children’s.”

The oncology team moved aggressively. The day of surgery, Richard’s chemotherapy was underway. On Saturday he began radiation therapy treatments at Mallinckrodt Institute. Dr. Patrick Thomas, the radiation oncologist, explained to Richard’s parents the need for radiation therapy to reduce what remained of the tumor and try to prevent any remaining cancer from pressing into the center of Rich’s spinal cord, threatening paralysis.

Mr. and Mrs. Turngren shared with the oncology staff in the decision that Rich be told at once that he had cancer. Sunday evening following his surgery, Dr. Robert “Bo” Kennedy spoke with him at length, gently describing the disease, the treatment, and the possible side effects. “Dr. Kennedy was so wonderful and gentle,” said Mrs. Turngren, “that Richard immediately related to him. He seemed to be able to handle it better after Dr. Kennedy talked to him.”

Recovering very quickly from surgery, Rich was able to go home within a week to be with his sister, Tracey, on her 8th birthday and four year old Becky.

Three days later the Turngrens learned the tests showed conclusively that Rich had Ewing’s sarcoma, a rare form of cancer originating in the shaft of long bones: frequently the femur, tibia, humerus, fibula, and pelvic bones. A fast growing disease, the aggressive treatment proved necessary.

During the next few difficult weeks, the religious faith of the Turngren family was heightened as they attempted to maintain a somewhat normal life, though, even with the carefully planned chemotherapy and radiotherapy, the cancer spread in a typical pattern to Rich’s right femur, left hip, and lower spine. The cobalt treatments were increased.

Through it all, the Turngren family felt undergirded with love and concern of friends in their church and community and Richard’s school

friends and teachers. Rebecca Banks, the Mallinckrodt Institute social worker, took a special interest in Rich, providing him with stories about other children with cancer — even coloring books to familiarize him with some of the procedures he might experience or see others experiencing in radiation oncology. Mrs. Turngren took books to school to help explain his illness to the teachers and Rich immediately wanted to share the coloring books with his classmates and teachers. On a snow day Mrs. Turngren brought a van loaded with Rich's friends to Mallinckrodt where they watched on the TV screen of the cobalt machine as he was being treated. No one seemed to notice that the wool cap he often wore covered the fact that his hair had fallen out from the medication.

On January 26, 1982 Richard wrote in his diary, "I finished my six weeks of radiation therapy today." After his treatment that day, Rich, his Mom, and Becky enjoyed refreshments in the MIR first floor conference room as they shared the fellowship of other patients and members of the staff.

"Everyone at Mallinckrodt who worked with Rich was well informed on his case," said Mrs. Turngren. "You've made us feel comfortable. You've all become family and it's obvious you care."

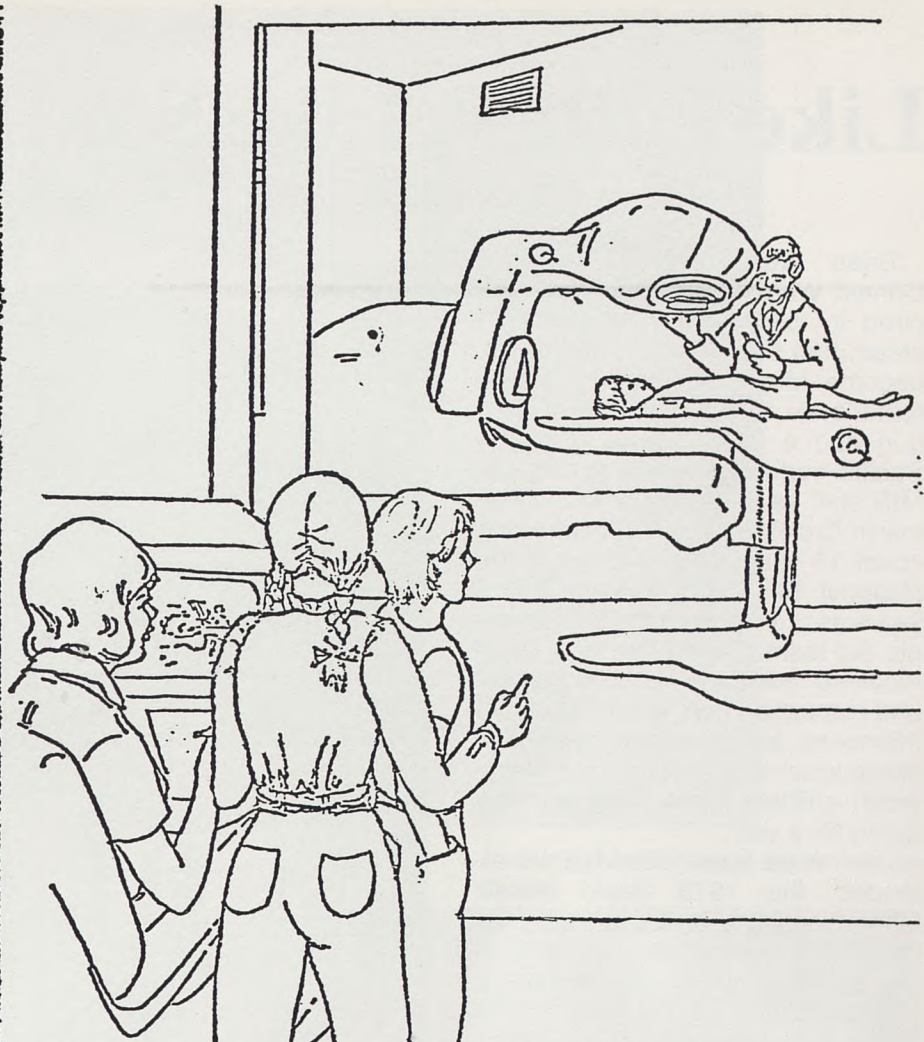
It's a long road ahead for Richard — a chemotherapy regimen for 18 months to two years and back to Mallinckrodt in six weeks for more radiation. But Rich is learning to cope with his illness. He has gained 5 pounds, and has just received an autographed "Blues" hockey stick. One of these days, we're counting on a new entry in his diary: "Today, we leave for Disneyworld" — a dream he wants to come true.

Above

Coloring-book drawings similar to this one helped to familiarize Richard with some of the procedures he might experience.

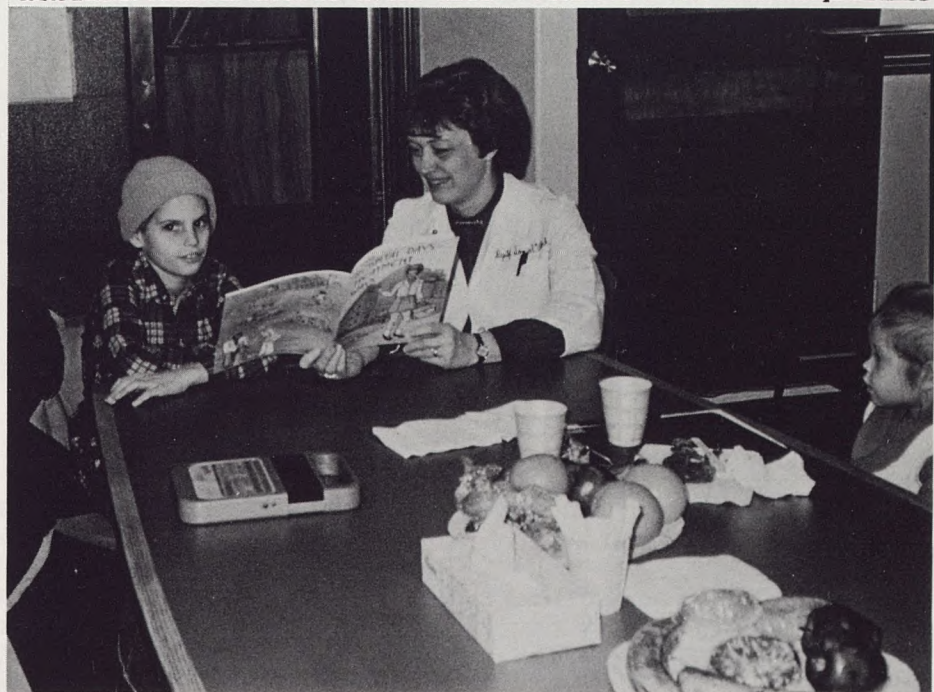
Right

Richard visits with Rebecca Banks, MIR Social Worker.



Kim has radiation therapy. After the big door is closed, she can be watched on T.V.

-7-



Like Father, Like Son!!!

Brian Wadsworth, son of Dr. Donald Wadsworth, might have aspired to follow in his father's footsteps, had he not, at the age of six, become intent on following in his father's ski tracks! A native of Oregon and a lifelong resident of the Pacific northwest before joining the MIR staff as an Instructor and a Fellow in Uro-Radiology, Dr. Wadsworth spent 15 years as a member of the National Ski Patrol System and 5 years as physician for the U.S. Olympic Ski team. During this time, Brian received additional encouragement and inspiration from one of the team members, Jay Bowerman, who gave skiing lessons to all four of the Wadsworth children while living with the family for a year.

Just three years after Donald attended the 1979 World Nordic Championships in Lake Placid as one of the team physicians, Brian at the age of only 19, has become a member of the U.S. Ski team and the Junior U.S. Champion of one of the Nordic events — the Biathlon. After winning three qualifying races this year in Lake Placid, Brian left on January 29 for warm-up races in Finland and Moscow before competing in the world championships in Minsk, Russia. He will then return to race again in the United States. In one of the most strenuous and demanding of Olympic events, Brian is making tracks that are hard to keep in sight.

At speeds of over 10 miles an hour, bearing a .22 rifle, the biathlon competitor races a complex cross-country course punctuated with targets to be scored with the precision of a sharpshooter. During a marathon to raise money for the Olympic team, Brian averaged 10 miles an hour racing and shooting an 82.6 mile course in 8½ hours. In Olympic competition, the biathlon racer seems to command the environment with the independence of a cross-country skier and the athletic bravura associated with other Nordic events — jumping, alpine, and downhill skiing.



Brian Wadsworth, Junior World Biathlon Champion.

For the biathlon racer living in one of the countries where the event originated — Finland, Russia, or East Germany — the natural environment provides greater opportunities for year-round training; in Redmond, Washington, Brian must spend his

summers roller skiing, bicycling, and running up and down hills. But for a champion in the making, artificial training is obviously no deterrent. Brian Wadsworth plans to become the World's Biathlon Champion — as soon as he is old enough!



Brian Wadsworth traverses the rugged terrain of the Olympic cross-country course.

Donald E. Wadsworth, M.D., answers his beeper.

Like Son, Like Father!

(It is mid-morning, the day of January 31, 1982. The city of St. Louis is paralyzed from a snow storm of blizzard proportions. Everywhere, automobiles are stranded and already 18 inches of snow have accumulated. Reminiscent of a lonely ski patrol, across the mammoth white blanket of snow-covered Forest Park, two cross-country skiers can be seen making their way along the blustery horizon. In a show of dedication and determination, Dr. Donald Wadsworth, accompanied by his wife, Diane, answered a call from Mallinckrodt Institute to perform an emergency ultrasound procedure. Using his remarkable athletic skill to provide needed health care in spite of enormous obstacles might be described by some as a test of strength and endurance. Dr. Wadsworth considered it a challenge!)



MIR Calendar of Events

March 21-26, 1982

THE ASSOCIATION OF
UNIVERSITY RADIOLOGISTS
SCARD/A³CR²

April 14, 1982

LEROY SANTE LECTURE
St. Louis University
5:30 P.M.

April 25 – May 3, 1982

4TH ANNUAL CURRENT
CONCEPTS IN
MUSCULOSKELETAL
RADIOLOGY AND
ORTHOPEDICS
Athens, Greece

May 9-14, 1982

AMERICAN ROENTGEN
RAY SOCIETY
New Orleans, Louisiana

May 10, 1982

CITY WIDE RADIOLOGY
CONFERENCE
Scarpellino Auditorium
Mallinckrodt Institute
5:30 P.M.

June 15-18, 1982

SOCIETY OF NUCLEAR
MEDICINE
Miami Beach, Florida

July 3-8, 1982

AMERICAN SOCIETY OF
RADIOLOGIC TECHNOLOGISTS
New Orleans, Louisiana



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