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GENESYS combines state-of-the-art advancements in gantry and detector design with enhanced robotics to deliver an overall system performance that assures exceptional diagnostic results in brain, whole body and SPECT imaging.

GENESYS features the industry’s most compact gantry design, providing easy access to patients while significantly reducing floor space requirements. The stability of the GENESYS gantry is unsurpassed in reducing artifacts, especially during SPECT and whole body imaging.

The GENESYS system’s five robotically controlled automated imaging positions, combined with an innovative collimator exchange and locking mechanism, minimize study set-up time and reduce operator errors. The GENESYS bi-level motorized table maximizes patient comfort and safety enabling improved brain SPECT imaging. For a closer look at GENESYS and a color brochure, call Nancy Hendrix at 1 (800) 538-8551 or (408) 945-2990 within California. Write to: 540 Alder Drive, Milpitas, CA 95035

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The AN-PYROTEC Kit for the preparation of Technetium Tc 99m Pyrophosphate is supplied as a set of five sterile, non-pyrogenic, white capped 10 mL vials. Each multidose vial contains 12.0 mg sodium pyrophosphate, from 2.8 mg to 4.9 mg stannous tin as chloride dihydrate with an adjusted pH of 5.3 to 5.7 prior to lyophilization.

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- normal scans and variants give you a basis for comparison
- tables of clinical indications assist in the decision making process
- problem-oriented pages of sequences of images illustrate the diagnostic process
- oddities and artifacts alert you to all the possibilities
- final teaching points tie it all together

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“ When I order a dose for my patient, it can be here when I need it. This allows my department to continue to work smoothly, even when emergencies arise. ”

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When Caring Is Called For
Syncor International Corporation
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Chatsworth, California 91311
Circle Reader Service No. 10
Imaging the brain for evaluation of stroke

Clinical impression:
Evolving CVA

CT interpretation:
Normal

Clinical challenge:
Localize and document the site and extent of CVA. Now. Not 2 or 3 days later.

Patient history:
Patricia M, a 44-year-old woman with history of hypertension, previous TIAs, right carotid endarterectomy

Reason for admission:
Onset of left-sided weakness and numbness
Admission CT of Patricia M interpreted as normal.

Limitations of stroke diagnosis with CT:
- Clinical decisions often made during first 48 hours, when CT often negative
- CT scan detects changes in brain density, not function
- Extent of lesion seen on early CT may correlate poorly with clinical signs
Early SPECT image:
Regions of normal and decreased tracer uptake

SPECTamine image of Patricia M reveals decreased right hemisphere uptake in the region of the caudate nucleus, and less pronounced decrease in uptake in the right temporal lobe and lower right parietal lobe.

Within minutes of injection, SPECTamine®
- Crosses the intact blood-brain barrier
- Concentrates in metabolically active brain cells
- Documents site and extent of CVA as regions of diminished uptake
- Provides additional diagnostic information for patient management

Your partner in advancing nuclear medicine

medi+physics®

Please see last page for full prescribing information.
Metabolic imaging with SPECTamine® (Iofetamine HCl I 123 Injection)

Imaging stroke with a neurotransmitter analog

SPECTamine® (Iofetamine HCl I 123 Injection) presents the medical community with the first lipid-soluble radiopharmaceutical for functional brain imaging in the evaluation of cerebrovascular accident (CVA). It enables clinicians to more completely evaluate patients with suspected nonlacunar stroke, which may be underappreciated with morphologic imaging modalities such as CT.²³ (Fig 1.)

SPECTamine is a neurotransmitter analog that rapidly crosses the intact blood-brain barrier, allowing it to be taken up by metabolically active neurons, predominantly in the gray matter.⁴ (Fig 2.) It reveals regional changes in brain physiology, indicating impaired brain function.³

Crosses intact blood-brain barrier

Unlike earlier nuclear brain-imaging agents, SPECTamine easily crosses the intact blood-brain barrier due to its unique lipid solubility. First-pass extraction efficiency is high, washout is slow, and brain-blood ratios are high.⁴ The initial distribution of SPECTamine is maintained for at least 1

Fig 1. Despite a normal CT study upon admission (left), this patient with left-sided weakness demonstrated decreased right hemisphere uptake in a SPECT study (right) performed with SPECTamine.

Fig 2. A normal SPECT study with iofetamine HCl I 123 shows relatively symmetrical uptake throughout the cerebral cortex.

Fig 3. Activity in lung and brain after IV injection of SPECTamine.
hour despite slow washout. As activity is slowly lost, it is also slowly replenished from a pulmonary reservoir.4 (Fig 3.)

**Affinity for amine receptors**

The clinical value of SPECTamine as an imaging agent results from its rapid uptake by viable neurons, predominantly in the gray matter. Winchell and associates theorized in preclinical studies that the trapping of lofetamine HCl I 123 is related to its affinity for high-capacity, relatively nonspecific binding sites for amines.5 This interaction with brain amine-binding sites suggested its possible application in studies of cerebral amine metabolism.6

**I 123 ideal for standard SPECT systems**

Iodine 123 has a photon energy of 159 keV and a half-life of 13.2 hours—a combination of characteristics that make this tracer favorable for tomographic imaging (Figs 4 & 5). Virtually every manufacturer of gamma cameras now offers software optimized for SPECTamine imaging.

**Radiation and safety considerations**

Total-body radiation from a SPECTamine scan is approximately 0.52 rad, with the highest organs of exposure being the retina (4.7 rads), bladder (2.5 rads), lungs (1.6 rads), liver (1.4 rads), and brain (0.7 rad). To reduce I 123 thyroid uptake, potassium iodide is administered prior to SPECTamine injection.

To minimize bladder exposure, patients are encouraged to drink and void frequently.

SPECTamine should not be administered during or within 14 days following administration of MAO inhibitors. SPECTamine may increase systolic blood pressure in some patients by up to 10 mm Hg.

Please see the full prescribing information on the last page.
**SPECTAMINE**

**DESCRIPTION:** SPECTAMINE® (iodine 123) injection is supplied as a sterile, aqueous, ammonium, or sodium chlorite solution for intravenous administration. Each milliliter of the solution contains 37 megabornequivalents (1 mCi) of iodine 123 at calibration time, 0.15 mCi/gallon iodine 123, 0.20 mCi/milliliter sodium phosphate, and 0.8 milligrams sodium chlorite for stability.

**PRODUCT INFORMATION:** SPECTAMINE® contains no bacteriostatic or preservative. The radiocliridal composition of the solution is not less than 94.7 percent at calibration time, not more than 6.9 percent at 12 hours, and not more than 0.5 percent at all other points (12.5, 130.0, and 1272.0).

**Attenuation:** The radioluminescence composition at the 6-hour expiration time is not less than 94.7 percent at calibration time, not more than 6.9 percent at 12 hours, and not more than 0.5 percent at all other points (12.5, 130.0, and 1272.0).

**INFORMATION:** Radiochemical Concentration of 123 and 124 as a function of time. Graph 1 shows the minimum concentration of 123 and the maximum concentration of 124 as a function of time.

**Graph 1:** Radiochemical Concentration of 123 and 124

<table>
<thead>
<tr>
<th>Time (h)</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>1</td>
<td>99.4</td>
</tr>
<tr>
<td>2</td>
<td>98.6</td>
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<tr>
<td>3</td>
<td>97.8</td>
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<tr>
<td>4</td>
<td>97.0</td>
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<tr>
<td>5</td>
<td>96.3</td>
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<tr>
<td>6</td>
<td>95.6</td>
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**Table 1:** Principal Radiation Emission Data

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean intensity (keV)</th>
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<tbody>
<tr>
<td>Gamma-2</td>
<td>83.4</td>
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<tr>
<td>Gamma-3</td>
<td>159</td>
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**Table 2:** Radiation Emission Data

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**Table 3:** Physiological Characteristics

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<th>Functional Component</th>
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<tr>
<td>Sodium Iodine</td>
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**Graph 2:** The chemical names are 17α-d,N-iodo-17β-p-dodecylamino-phenylothalamine hydrochloride, (3α,4a,5β,7β)-N-methyl-1H-methyl-2-azatricyclo-[3.3.1.0]2,7 heptane-2-carboxylic acid, and (3α,4a,5β,7β)-N-iodo-17β-phenylothalamine hydrochloride.

**Molecular Formula:** C35H28N2O4I

**Structural Formula:** 33,744

**Physical Characteristics:** Iodine 123 decays by electron capture with a physical half-life of 13.2 hours. The photon is useful for detection and imaging studies. Table 1 includes the photon energy and time of disintegration. For iodine 123, there is no high energy member of the [Yt ters. A 54.2 keV photon with an intensity of 59.5 percent, thus, a higher energy collimator may be advantageous.

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Whose uncompromised attention to fundamentals is causing a stir in nuclear medicine imaging?

Raytheon
the image is clear...
The Society of Nuclear Medicine has initiated a major nuclear medicine self-study program to aid physicians, scientists, and technologists in expanding their knowledge of the clinical, basic science, and technical aspects of nuclear medicine. The study and self-evaluation approach has been shown to be an effective means of acquiring medical knowledge and an objective means of evaluating strengths and weaknesses.

The entire Nuclear Medicine Self-Study Program is to consist of four sequential publications (I-IV) which will review the entire field of nuclear medicine. Each program is divided into three components: a soft cover book consisting of a syllabus, questions, and answer sheets; a separate book with answers and detailed critiques; and a personal psychometric evaluation, complete with a norms booklet.

Like the earlier Nuclear Medicine Review Syllabus, the Nuclear Medicine: Self-Study Program syllabus has been designed to strengthen your knowledge of nuclear medicine, sharpen your clinical skills, and keep you abreast of recent developments. The self-assessment test, with its answers and critiques, should provide additional help in identifying strengths, as well as possible gaps in your knowledge. It can be used to obtain CME or CEU credits, to prepare for board and/or recertification exams, or as a reference and teaching aid.

The first volume of this program, Nuclear Medicine: Self-Study Program I, will cover four areas of nuclear medicine: Radiobiology and Radiation Protection, including regulatory matters; Gastrointestinal Nuclear Medicine; Skeletal Nuclear Medicine; and Pulmonary Nuclear Medicine. Both the syllabus and questions emphasize essential, clinical-related information. The syllabus and critiques contain annotated references to allow the reader to seek additional information on each topic. The questions are carefully prepared to approximate the format and level of difficulty encountered in specialty board examinations.

The answer and critique book provides the correct answer for each question and discusses the various options. Hence, the review of answers and questions also constitutes an important learning experience.

The personal psychometric evaluation provides comparisons of your performance with that of a peer group. A norms table will indicate your percentile ranking for each subject area, as well as the percentage of participants who answered each question correctly. Anticipated publication date for Nuclear Medicine: Self-Study Program I is June 1988. It will be available to members for $90; nonmembers for $115; and residents for $75. Answer sheets will be accepted for psychometric evaluation, for CME and CEU credit, and for inclusion in the norms tables through November 1, 1988.
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Have you heard about TheraSeed™—Palladium¹⁰³?

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No, you’re not forced to do anything—although you’ll probably choose to use a higher activity with TheraSeed™. The higher initial dose rate provides maximum tumor damage and the shorter half-life produces less residual radiation damage to healthy tissue.

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The MIRD Primer for Absorbed Dose Calculations was prepared by the MIRD Committee to provide a fresh explanation of the MIRD schema with examples designed to illustrate applications.

The text is divided into four parts: the Primer, Examples of the Use of the MIRD Schema, The Collected Absorbed Dose Estimate Reports, and Appendices.

Part 1 offers a detailed explanation of the MIRD method.

Part 2 amplifies this explanation with examples designed to illustrate applications beginning with relatively simple problems and working up to more complex ones.

Part 3 contains previously published MIRD absorbed dose estimates, now readily assembled in one book, that have been revised and edited for this publication.


The MIRD Primer also contains a substantive index, a detailed glossary and list of symbols, and for your handy reference calculation tables on the inside front and back covers. It’s 128 pages. To be published in March.

This text is an invaluable reference tool for everyone who is involved in nuclear medicine research and practice!
IF YOU MISSED TORONTO, YOU MISSED A GREAT MEETING—MAKE UP FOR LOST TIME; COME TO SAN FRANCISCO

Its cable cars, bridges, Victorian buildings, cultural variety, food, and, of course, its beautiful bay will set the backdrop to four days of intensive learning opportunities, interspersed with exciting social events. San Francisco, California, will be the site of our Thirty-fifth Annual Meeting. If you missed Toronto, you missed a great meeting, but San Francisco promises to be even better.

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This year's presentation of over 700 scientific papers and posters includes a distillation of the latest advancements and finest work achieved by outstanding scientists and physicians in the field of nuclear medicine. These papers, presented by the original authors, with over 30 subjects to choose from, will provide a unique opportunity for enhancing your knowledge or exploring new avenues in correlative areas of nuclear medicine. Ample time is allotted at these presentations for questions and discussions.

An extensive display of scientific posters and exhibits will augment the presentations.

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Refresher and state-of-the-art continuing education courses in chemistry, physics, quality assurance, cardiovascular nuclear medicine, PET, SPECT, and NMR will supply up-to-the-minute approaches and procedures for all clinical settings.

TECHNOLOGIST PROGRAM

The ever-increasing importance of the role of the nuclear medicine technologist will be explored in our Technologist Program, and over 70 hours of clinical updates will provide chief and staff technologists with the latest in basic, intermediate, and advanced studies. This program will broaden expertise and enhance the technologist's contributions to nuclear medicine.

EXPOSITION

More than 100 pharmaceutical and equipment manufacturers will display their latest products in a lively atmosphere. These knowledgeable commercial representatives offer the technical depth our field demands, and they are valuable sources of timely and pertinent information.

AUDIOVISUALS, BOOKS, JOURNALS

The Society of Nuclear Medicine is continually adding to its library of audiovisuals, books, and other publications. A stop at the publications booth is well worth the time. Here you will find on display what the society has to offer for year-round educational advancement.

Networking opportunities and job referral boards are available at special locations throughout the meeting as well as membership information at our membership booth.

Registration: $130 SNM members
$225 nonmembers
Hotels: $100 US average rate/night

If you need further information, please contact:

The Society of Nuclear Medicine
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You will receive written notification soon after this deadline. A schedule of speakers and topics will be available at the meeting. The session or sessions will be held in the early evening (either Wednesday, Thursday or both) immediately following the close of the last Scientific Session.
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  By MARYLYN E. NOZ, PhD, New York University Medical School, New York, New York; and GERALD Q. MAGUIRE, JR., PhD, Columbia University in the City of New York. Covers a wide range of topics providing readily applicable information on specific internal/external radiation sources, risk and protection measures, absorbed dose and biological effects, neutron interaction and detection, and other pertinent topics concerning radiation protection. 277 pp., 50 illus., paperback, 1985, $24.50.

- **TEXTBOOK OF NUCLEAR MEDICINE**, Volume I: Basic Science, 2nd ed.
  Edited and with contributions by JOHN HARBERT, MD, Georgetown University Medical School, Washington, D.C., and ANTONIO FERNANDO GONCALVES da ROCHA, Centro de Medicina Nuclear, Rio de Janeiro, Brazil. Includes detailed discussions of magnetic resonance, digital radiography, elements of image perception, and cerebral blood flow studies with xenon-133, radionuclide generator systems, and radiation effects. 526 pp. (7 x 10), 322 illus., 1984, $85.00.

- **TEXTBOOK OF NUCLEAR Medicine**, Volume II: Clinical Applications, 2nd ed.
  Edited and with contributions by JOHN HARBERT, MD, Georgetown University Medical School, Washington, D.C., and ANTONIO FERNANDO GONCALVES da ROCHA, Centro de Medicina Nuclear, Rio de Janeiro, Brazil. Three new chapters have been added on special brain imaging, the eye and the lymphatics. Other topics discussed are the endocrine system, and central nervous system. Discussion of the cardiovascular system includes a detailed look at myocardial perfusion, cardiac dynamics, and myocardial infarction imaging. 724 pp. (7 x 10), 375 illus., 1984, $98.50.

- **INTRODUCTORY PHYSICS OF NUCLEAR MEDICINE**, 3rd ed.
  By RAMESH CHANDRA, PhD, New York University Medical School, New York, New York. Although specific changes have been made to the third edition of this introductory text, its purpose and audience remain the same as for the previous editions. The author has covered many examples taken from the routine practice of nuclear medicine, all explained in a clear and easy-to-understand manner. Basic principles and underlying concepts are thoroughly outlined although the author assumes that the reader will be familiar with elementary concepts of physics. Besides small changes throughout, the third edition features these major changes and additions: a new chapter on Emission Computed Tomography, which is assuming considerable importance in nuclear medicine; and attention to new radiopharmaceuticals that have come into use since the previous edition. On the second edition: "Chandra's book is a smoothly written, gentle introduction to the basic concepts... Fewer other textbooks provide the reader with a work that is so readable and so well balanced." -- New England Journal of Medicine. 233 pp., 77 illus., paperback, 1987, $18.50.

- **NUCLEAR PHARMACY: An Introduction to the Clinical Application of Radiopharmaceuticals**
  By HENRY M. CHILTON, Pharm.D., and RICHARD L. WITCOFSKI, PhD., both of Bowman Gray School of Medicine of Wake Forest University, Winston-Salem, North Carolina. Superbly organized and illustrated, this introductory text reviews fundamental concepts of nuclear pharmacy in a logical, stepwise manner, from basic principles through clinical applications. In the initial chapter, the subject is introduced and contrasted to traditional pharmacy services. Subsequent chapters present those aspects of radioactivity basic to nuclear pharmacy including production of radioactivity and the types of instrumentation used to detect and measure radiation. Other chapters detail radiation dosimetry, methods of preparing radiopharmaceuticals, and quality control considerations involved in the use of radiopharmaceuticals. Clinical applications of radiopharmaceuticals are presented in a consistent pattern. Chapters are included on radiopharmaceuticals for thyroid and adrenal imaging, gastrointestinal imaging, and cardiac imaging. This text also presents a summary of regulations and regulatory agencies affecting nuclear pharmacy and medicine. 190 pp. (7 x 10), 111 illus., 1986, $22.50.

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NUCLEAR MEDICINE TECHNOLOGIST. Registered or eligible technologist for the university affiliated teaching hospital in Boston, MA. Competitive salary & benefits. Write or call: Nuclear Med. Dept., VAMC, West Roxbury, MA 02132; (617)323-7700. EOE.

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DEPARTMENT OF NUCLEAR MEDICINE

The Nuclear Medicine Department requires an experienced Nuclear Medicine Technologist.

The department caters for the needs of a 500 bed teaching hospital as well as privately and publicly referred outpatients, and offers a comprehensive range of nuclear medicine techniques, including cardiovascular scanning, digital analysis, in vivo tracer studies, RBC and WBC blood labelling, real time ultrasound and bone mineral densitometry.

Equipment includes a GE 400 ACT (tomographic capability), Toshiba GCA 402, and two mobile cameras, a Searle LEM and a GE 300 M Starcam. Computer systems are DEC PDP 11/34 and 11/73. Ultrasound studies are performed on a Phillips SDR-2000 real time machine. Bone mineral studies are carried out on Lunar SP2 and DP3 densitometers.

Applicants should have experience in a wide range of nuclear medicine procedures and the use of computers. The successful applicant would be responsible to the Director of Nuclear Medicine and the Chief Technologist.

The position is available for a twelve month working holiday, or on a permanent basis if desired. The hospital will assist as far as possible with application for work visa or immigration.

WROTEEN APPLICATIONS SHOULD BE DIRECTED TO THE EMPLOYEE SERVICES MANAGER, ST. VINCENT’S HOSPITAL, VICTORIA STREET, DARLINGHURST 2010, SYDNEY, AUSTRALIA. FURTHER INFORMATION MAY BE OBTAINED FROM THE CHIEF NUCLEAR MEDICINE TECHNOLOGIST, MRS. J. WILKS ON ISD (61) (2) 361 2620

Nuclear Medicine Technologist

Mercy Hospital, Cedar Rapids, Iowa, is currently seeking a registered, or registry eligible Nuclear Medicine Technologist to join our 353-bed community hospital.

Our expanding and progressive department includes 10 dynamic radiologists, with one Board certified in nuclear medicine. Equipment includes two new gamma cameras with SPECT capabilities and also an Osteoanalyzer.

This is a full-time, day position with call and rotation on weekends and evenings. Cardiac and computer experience helpful.

A full benefit package and competitive salary in our progressive midwestern city of 110,000 add up to an excellent lifestyle. Cedar Rapids is 25 miles from the University of Iowa in Iowa City and is equidistant from Kansas City, Minneapolis, St. Louis, and Chicago.

Please send resume to:

Personnel Department
Mercy Hospital
701 10th Street SE
Cedar Rapids, IA 52403
(319)354-6150

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NUCLEAR MEDICINE TECHNOLOGIST

An immediate, full-time position is available for a registered or registry eligible Nuclear Medicine Technologist. Come join a progressive, expanding Nuclear Medicine Department at Fremont Medical Center and Rideout Memorial Hospital, located in the heart of Northern California’s recreation land, 40 miles north of Sacramento.

We are presently equipped with three gamma cameras, the most recently installed is a state-of-the-art E.C.T. system. Prefer candidates for this position be knowledgeable in all aspects of Nuclear Medicine computers.

We offer a competitive salary and excellent benefit package.

Qualified applicants reply to:
Kay Danik, Personnel Director
Fremont Medical Center
970 Plumas Street
Yuba City, CA 95991

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6–12 August 1988
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International Organization for Medical Physics
Canadian Association of Physicists
International Federation for Medical and Biological Engineering
Canadian College of Physicists in Medicine
Alliance for Engineering in Medicine and Biology
Society For Biomaterials

The scientific program is planned to satisfy many diverse interests.

(1) Plenary Symposia: Space Medicine and Biology, Medical Physics and Bioengineering in Latin America, Medical Imaging, Artificial Organs, and Computers in Medicine.

(2) Biomedical Engineering Symposia: Electrophysiology, Clinical Engineering, Biological Systems Modeling, Biomechanics, Atherosclerosis, Ultrasound, Biosensors, Rehabilitation Engineering, Bioprocessing, Drug Infusion, Cardiovascular Dynamics, Technology Assessment, Artificial Heart, Cellular Biomechanics, Medical Devices, Respiratory Dynamics, and Biofluid Mechanics.

(3) Medical Physics Sessions: Radiotherapy Treatment Planning, Quantitative Imaging, Medical Lasers, Hyperthermia, Digital Imaging, Labeled Antibodies, Brachytherapy, Biomagnetics, Magnetic Resonance Imaging, SPECT and PET, PAC, CT, and Nuclear Magnetic Spectroscopy.

Deadlines to note are the following: Abstracts—15 February 1988; Works-in-progress—1 May 1988; and Early Registration—15 June 1988.

The World Congress will open on Sunday, August 7 and end at noon on Friday, 12 August 1988. The social program includes a Reception on Sunday night, a Cocktail Party on Monday, and a gala Fiesta/Western Style Party on Wednesday night. A large block of convenient hotel rooms has been reserved and the Hyatt Regency Hotel on the riverwalk will serve as the AAPM Headquarters hotel.

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Kay Danik, Personnel Director
Fremont Medical Center
970 Plumas Street
Yuba City, CA 95991

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NUCLEAR CARDIOLOGY TECHNOLOGIST

The Methodist Hospital, Houston's largest hospital, faces the future with confidence as we expand from 1218 beds to 1527 beds in 1988. As the primary adult teaching facility for Baylor College of Medicine, we have integrated teaching and research with our mission to provide the finest patient care in the world.

The Department of Cardiology Non-invasive Services is one of the largest and most sophisticated in the nation; this includes the area of Nuclear Cardiology, which offers over 7,000 procedures annually. This department offers state-of-the-art equipment such as 4 SPEC units, a first PASS Camera and integrated computer systems. Along with a wide spectrum of Nuclear Medicine Clinical studies which sometimes involve developing new techniques. Combine this with a commitment to teaching and research to achieve a dynamic work environment.

We are seeking an outstanding Nuclear Cardiology Technologist to join our research oriented team. Qualified candidates must possess:

- Associates or Bachelor's degree
- Current registry or certification in Nuclear Medicine Technology
- Experience in performing Nuclear Cardiology procedures

The Methodist Hospital offers competitive salaries and benefits, including 3 weeks paid vacation after one year of employment. These along with living in the fourth largest city in the country make Houston and The Methodist Hospital an excellent environment to continue your professional career. Please contact us at: The Methodist Hospital, 6565 Fannin, Houston, TX 77030 or CALL COLLECT at (713) 790-2218. Attn: Jacqueline Espinoza.

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NUCLEAR MEDICINE TECHNOLOGIST

No Night Call
Interview and Relocation Assistance Available

Pleasant, dynamic community hospital with teaching programs and radiology residency. Baylor University Medical College has an immediate opening for a Nuclear Medicine Technologist to work as part of a professional team. Registry or eligible.

Norwalk Hospital offers excellent salaries and benefits as well as every opportunity for personal and professional growth. Norwalk Hospital overlooks beautiful Long Island Sound and is at the heart of cultural attractions in Fairfield County, New England and New York City.

To apply please submit resume to:

Isabel E. Fawcett
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NORWALK HOSPITAL
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THE PRINCE OF WALES HOSPITAL

NUCLEAR MEDICINE TECHNOLOGISTS

Vacancies exist for suitably qualified Nuclear Medicine Technologists at The Prince of Wales Hospital, Randwick, which lies close to the sea, 7 kilometres from the centre of Sydney.

The Department provides a full range of Nuclear Medicine procedures including computerised and tomographic studies to The Prince of Wales Hospital, the Prince Henry Hospital and The Prince of Wales Children's Hospital which, with 1250 beds, is the major teaching complex of the University of New South Wales.

Applicants must be prepared to participate in on-call services as well as become involved in research projects.

Applicants should be accredited or be eligible for accreditation by the Australian and New Zealand Society of Nuclear Medicine. Reciprocity exists with the Canadian Association of Medical Radiation Technologists.

Applications in writing giving full details of qualifications and experience together with names and addresses of two referees should be forwarded to The Staff Manager, The Prince of Wales Hospital, High Street, Randwick, N.S.W. 2031, Australia.

The Eastern Health Service is an equal opportunity employer and invites applications from all suitably qualified persons, regardless of race, sex, marital status, disability or sexual preference.
POSITION AVAILABLE
Nuclear Medicine Physician with Board certification in pathology and nuclear medicine is needed for expanding and progressive practice in all aspects of nuclear medicine, including SPECT and pathology. Qualified applicants should send CV to: B. Kashlan, MD; Terre Haute MedLab; P.O.B. 1468; Terre Haute, IN 47808; or call (812)232-9537.

NUCLEAR MEDICINE PROFESSIONALS
Parkland, an expanding 940-bed acute care facility and teaching hospital serving Dallas County, is seeking Registered or Registry eligible Nuclear Medicine Technologist. To the new graduate, we offer excellent experience; to the seasoned technologist, career growth in a state-of-the-art environment. The Nuclear Medicine Division will be installing a Diasonics ultra low field Magnetic Resonance Imaging unit for clinical and research purposes. The Nuclear Medicine technologist will be cross trained and have responsibility in MRI as well as Nuclear Medicine. The Nuclear Cardiology Division has just received the first Prism Ohio Imaging Three Detector Tomographic Camera, which will be used for heart and brain research.

Parkland offers educational opportunities through our affiliation with the University of Texas Health Science Center and a competitive salary with excellent benefits. For more information call (214) 590-8063 or send your resume to: Parkland Memorial Hospital Professional Placement Office 5201 Harry Hines Blvd. Dallas, Texas 75235

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TECHNOLOGIST
Nuclear Medicine Technologist. Registered-Certified Nuclear Medicine Technologist (AART or CNMT) for Nuclear Imaging Department needed for 935-bed, acute care hospital located in Tulsa. Emergency call back required. Qualified applicants please submit resume to:

Saint Francis Hospital
6161 South Yale, Tulsa, OK 74136
(918) 494-1710
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The President's Committee on Employment of the Handicapped Washington, D.C. 20036

NUCLEAR MEDICINE TECHNOLOGIST
Wilkes-Barre General Hospital, a 444-bed acute care hospital, located in the scenic Pocono Northeast, is seeking a full-time Nuclear Medicine Technologist. Our progressive, state-of-the-art Nuclear Medicine Department requires that the interested candidate be either registered or registry eligible.

We offer a competitive starting salary and an extensive fringe benefit package including BC/BS, vision and dental (family coverage provided by hospital); life insurance, hospital paid pension plan, tuition reimbursement, 4 personal days, 12 sick days, 7 holidays, 2 weeks vacation, sick child infirmity, and numerous additional benefits.

For a prompt response please send vitae or call:

Human Resources Department
Wilkes-Barre General Hospital
N. River & Auburn Streets
Wilkes-Barre, PA 18764
(717) 829-8111, ext. 2133

Call for Abstracts
Fourth Asia & Oceania Federation of Nuclear Medicine
November 1-4, 1988
Asia & Oceania Congress of Nuclear Medicine
Taipei, Taiwan, Republic of China

Topics include: bone/joint, cardiovascular, gastrointestinal, hematology, infection and immunology, neurology, oncology, pediatric, pulmonary, renal, instrumentation, radioassay, dosimetry, radiobiology and NMR.

Fees: $250 physicians; $175 scientists, technologists, and others.

Contact: Peter S.H. Yeh, MD
President, Asia & Oceania CNM
Department of Nuclear Medicine
VA General Hospital, Peitou
PO. Box 2-38, Taipei, Taiwan 11216
(02)871-5849 (telex: 28514)

or: Wilfrido M. Sy, MD
Chairman, North American Section
Department of Nuclear Medicine
Brooklyn Hospital
121 DeKalb Ave., Brooklyn, NY 11201
(718)403-8225
(Western Union Easylink: 62008461)
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Hosp. of the Univ. of Pennsylvania
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Philadelphia, PA 19104
(215) 662-7887

Local Arrangements and Commercial Exhibits:
David T. Kopp, Ph.D.
Dept. of Radiology
UTHSC at San Antonio
7703 Floyd Curl Dr.
San Antonio, TX 78240
(512) 567-5550

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From The Technologist Section... CLINICAL EVALUATION METHODS GUIDE

This publication is designed to aid allied health and nuclear medicine technology educators in developing appropriate assessment instruments for evaluating student performance.

The 6 assessment tools described are: checklists, rating scales, anecdotal records, critical incident technique, questionnaires, and data forms.

While indispensable to professionals in nuclear medicine and related technology programs, the information contained herein will also be useful to those involved in personnel evaluation.

Softcover Format; 8½ × 11; 72 pp.; 1982

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New Products

Total Body Densitometer

Lunar Radiation Corp. introduces its DP4 Total Body Densitometer for clinical use. The new DP4 features an IBM Personal Computer/AT, color display and decreased scan time. Scan time is reduced through intelligent scanning which follows body contours, thus shortening scan lines, according to the company. Total body features include automatic placement of nine anatomical cuts, soft tissue (fat/lean) characterization, artifact exclusion, and up to five regions-of-interest for specific study. The DP4 comes with Lunar's unique spine/femur software, providing comparison to normals and fracture risk assessment. The Lunar DP4 is the only proven total body densitometer on the market, according to the company. The DP4 is available with an optional color printer. Lunar Radiation Corp., 313 W. Beltline Hwy., Madison, WI 53713. (800)445-8627.

Circle Reader Service No. 109

Multichannel Analyzer

Canberra Industries introduces a new personal computer based Multichannel Analyzer (MCA) for nuclear counting purposes. The System 100 Multichannel Analyzer is an advanced PC board based MCA that offers high performance data acquisition, spectrum display, and analysis within a multi-program, windowing operating environment, according to the company. The System 100 architecture features up to four 16K channel (32 bit) MCA/memory boards integrated into a personal computer environment managed by Microsoft Windows. Windows expand the traditional single job operation of the DOS operating system so that multiple application programs run simultaneously. Users may display multiple MCA windows and initiate commands through a simple Mouse and/or keyboard operation. Pull-down menus, pop-up windows, scroll bars and icons provide instinctive control of the system, while including traditional MCA functions like linear and log display scales, overlap, expand, smooth, strip, transfer, first and second order energy calibration, and peak information. An extensive on-line help facility virtually eliminates the need for an operator's reference manual, according to the company. All Canberra System 100 configurations include word processing, drawing, appointment calendar, notepad, and other application programs. These tools enable users to create custom reports by "capturing" sections of generated word processed text. The user can even assemble portions of actual spectrum graphics and results from Canberra application programs to create the ultimate report generation facility. Canberra Industries, 1 State St., Meriden, CT 06450. (203)238-2351.

Circle Reader Service No. 110

MCS Emulation Software

EG&G Ortec introduces the ACE-MCS plug-in PC card and MCS Emulation Software that converts an IBM personal computer or equivalent into a high-performance easy-to-use multichannel scaler. A single PC can control up to eight ACE-MCS cards. The system can perform multichannel scaling for a wide variety of scientific applications including Mossbauer spectroscopy, time-of-flight measurements, decay analysis, medical uptake studies, mass spectrometer applications and beam profiling. The ACE-MCS may be used in conjunction with other EG&G Ortec instruments including the ACE Mate Amplifier/Bias Supply/SCA/Rate-meter and ACE MCA cards. A four-page data sheet and price list are available on request. EG&G Ortec, 100 Midland Rd., Oak Ridge, TN 37831-0895. (800)251-9750.

Circle Reader Service No. 111
SPECTAMINE®

DIAGNOSTIC - FOR INTRAVENOUS USE

DESCRIPTION: SPECTAMINE® Injection, USP, 123 I injection, is supplied as a sterile, pyrogen-free, airdried, sodium chloride solution for intravenous administration. Each milliliter of the solution contains 12.5 megabecquerels (12.5 miCi) of 123 I in 0.9% sodium chloride injection, USP, 0.017 millimolar sodium phosphate, and 0.8 millimolar sodium chloride for isotonicity. The pH is adjusted to 4.5 to 5.0 with sodium hydroxide or hydrochloric acid. SPECTAMINE contains no bacteriostatic preservative. The radiouclide concentration at calibration time is not less than 94.7 percent of the label claim, not more than 4.8 percent of the label claim, and not more than 0.5 percent at all other (125, 130, 150, and 170 C) label claim. The radiochemical composition at the 6-hour expiration time is not less than 63% of the label claim, not more than 6.2% and 0.2% at all other (125, 130, 150, and 170 C) label claim. The radiochemical composition at the 6-hour expiration time is not less than 0.7 percent at all other.

The ratios of the concentration of 123 to 124 decreases with time. Graph 1 shows the minimum concentration of 123 and the maximum concentration of 124 as a function of time. Graph 1. Radiochemical Concentration of I 123 and I 124

CLINICAL PHARMACOLOGY: 123 I or 124 I is a positron emitter. In humans, the percentages remaining in the brain, liver, lung, and fat, respectively, at 1, 2, 3, and 6 hours, were 9.8, 2.5, 14.7, 22.8, and 10.5, 6.1. None of these studies demonstrated any constant plateau in concentration among any organ. Animal studies have shown that administration of 123 I or 124 I is removed from the circulation via first passage metabolism primarily by the brain and liver. The excretion fraction in the lungs is low. This fraction may be partly dependent on pH. The ratio of concentration in gray to white matter in primate brain shows good correlation between concentration and time after injection.

Table 3. Physical half-life and biological half-life of effects of SPECTAMINE 123 or 124.

<table>
<thead>
<tr>
<th>Fraction Remaining</th>
<th>Brain</th>
<th>Liver</th>
<th>Lung</th>
<th>Plasma</th>
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<tr>
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<td>0.00</td>
<td>0.04</td>
<td>0.90</td>
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<tr>
<td>9</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Adverse Reactions: In a clinical study in 53 patients with sudden onset of focal neurological deficit e.g., cerebral infarction, patients died within 2 to 35 days after administration. The deaths were caused to be a result of the disease state and not related to the concurrent control group, statistics of historical controls support this evaluation.

There is evidence suggesting that the administration of 1 to 2 milligrams of the sodium salt of SPECTAMINE I can increase systolic blood pressure by about 10 mm Hg. In a patient with a history of hypertension, there has been a single report of sudden onset of hypertension and dizziness with transient chest tightness which occurred 5-10 minutes after administration of SPECTAMINE. One case of transient unilateral hearing loss was also reported several hours after the use of SPECTAMINE in a patient with a concurrent upper respiratory infection.

As with all organic-solute-containing compounds, the possibility of allergic reactions must be considered.

DOSAGE AND ADMINISTRATION: The recommended intravenous dose for SPECTAMINE (123 or 124 I) ranges from 70 to 110 milligrams of #222 iodine in 1 milliliter of 0.9% saline solution. It is desirable to decrease thyroid accumulative radiation of radioactive iodine by administering three drops of Potassium iodide Oral Solution 1.0 hour before injection of SPECTAMINE. Use of the oral solution has to be given at least one hour after the intravenous administration of the agent. An oral solution of 4 to 5 drops may be given to the patient if the agent is swallowed during the procedure.

RADIATION DOSE: The estimated absorbed radiation dose to an average adult patient (70 kg) is 110 to 222 megabecquerels (3 to 6 millicuries) of 123 I or 124 I. The mouth and time of administration and time of expiration are shown in Table 4. Radiation dose estimates include contributions from 123 I, 124 I, 125 I, and 131 I. The 131 I component is based on estimated 124 I absorbed radiation dose. Use of an oral solution for swallwlowing 10 minutes before injection of the drug.

Table 4. Estimated Absorbed Radiation Dose

<table>
<thead>
<tr>
<th>Target Organ</th>
<th>At Calibration Time</th>
<th>At Expiration Time (in hours after calibration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain</td>
<td>5.86</td>
<td>6.66</td>
</tr>
<tr>
<td>Nerves</td>
<td>4.44</td>
<td>4.7</td>
</tr>
<tr>
<td>Lung</td>
<td>1.14</td>
<td>1.6</td>
</tr>
<tr>
<td>Liver</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Kidneys</td>
<td>0.42</td>
<td>0.47</td>
</tr>
<tr>
<td>Blood</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Spleen</td>
<td>0.26</td>
<td>0.26</td>
</tr>
<tr>
<td>Bone</td>
<td>0.38</td>
<td>0.44</td>
</tr>
<tr>
<td>Soft Tissue</td>
<td>0.47</td>
<td>0.53</td>
</tr>
<tr>
<td>Red Nuclea</td>
<td>0.52</td>
<td>0.58</td>
</tr>
<tr>
<td>Kidney</td>
<td>0.52</td>
<td>0.54</td>
</tr>
<tr>
<td>Total Body</td>
<td>1.5</td>
<td>1.66</td>
</tr>
</tbody>
</table>


HOW SUPPLIED: SPECTAMINE is supplied in normal saline (0.9%) as sterile, pyrogen-free, airdried, sodium chloride solution for intravenous injection. Each milliliter contains 37 megabecquerels (1 milligrey) of 123 I in 0.9% saline solution at 121 C for 10 days after manufacture. Absolute Radiation Dose and Precautions: The radioactive compound is not intended for use in children or pregnant women. Absolute Radiation Dose and Precautions: The radioactive compound contains no preservatives. Absolute Radiation Dose and Precautions: The radioactive compound contains no preservatives. Absolute Radiation Dose and Precautions: The radioactive compound contains no preservatives.

Circle Reader Service No. 1


Medicare, Inc.
511 East Ridgewood Avenue
Paramus, New Jersey 07652
The dawn of metabolic brain imaging in the evaluation of stroke... and a new day for nuclear medicine

Patient history:
Patricia M, a 44-year-old woman with a history of hypertension, previous TIAs, right carotid endarterectomy

Reason for admission:
Onset of left-sided weakness and numbness

CT interpretation:
Normal

SPECTamine interpretation:
Decreased right hemisphere uptake in the region of the caudate nucleus, and less pronounced decrease in uptake in the right temporal lobe and lower right parietal lobe

SPECTamine image courtesy of the Medical College of Wisconsin, Milwaukee, WI