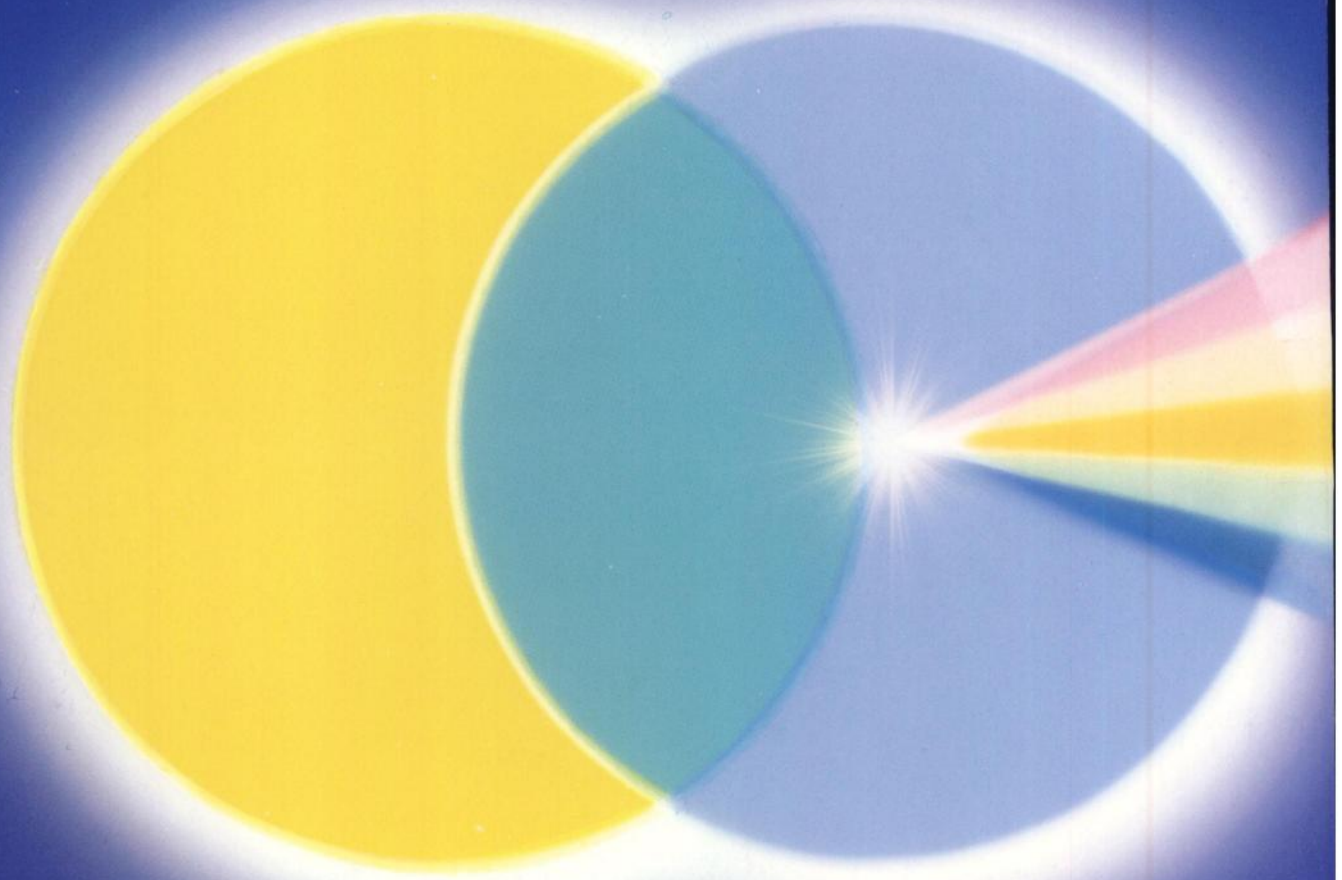


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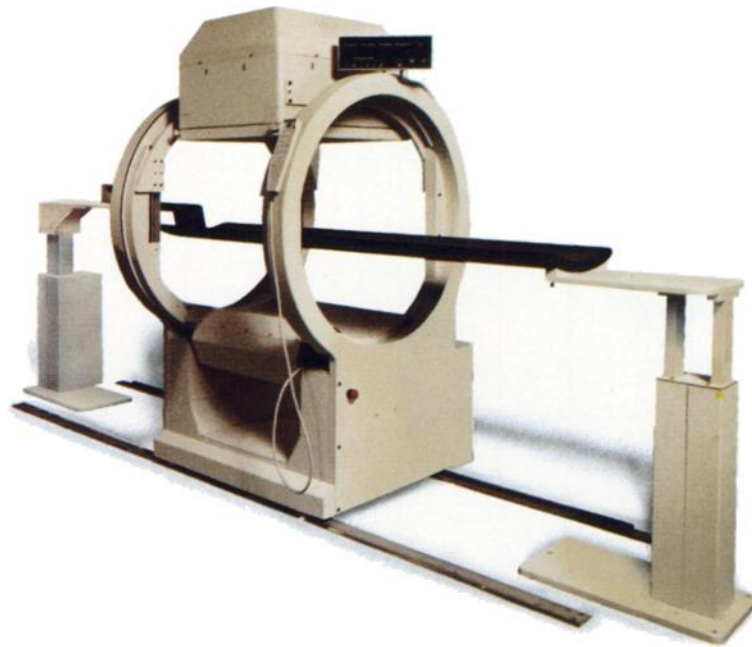


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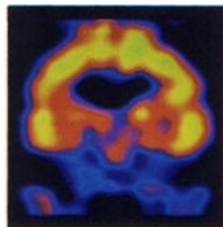
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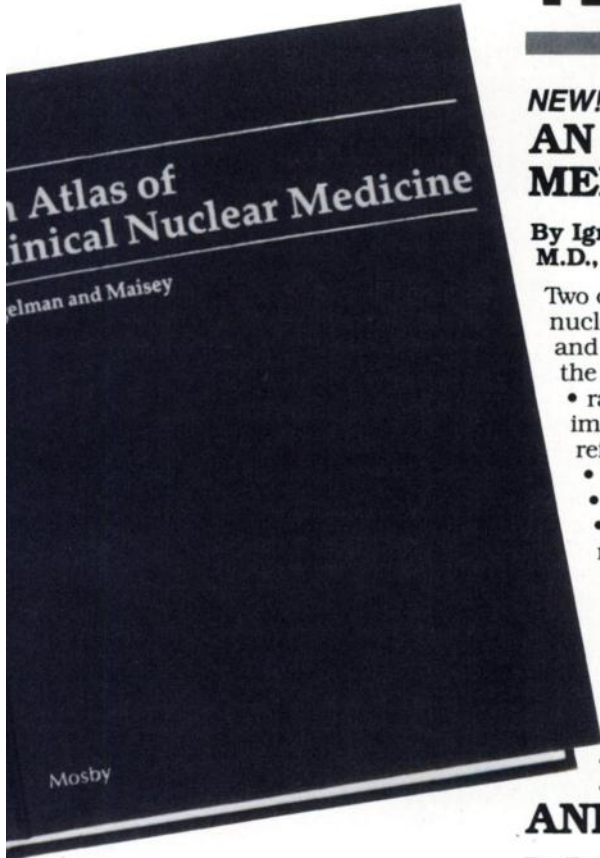
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Topics related to nuclear medicine will be considered for inclusion in the scientific program as follows:

Instrumentation: Instrumentation and New Technologies, Emission Computed Tomography (SPECT and PET), NMR, Computers, Image Processing, Artificial Intelligence, Quality Control of Instrumentations.

Radiopharmaceuticals: Radiopharmaceutical Chemistry, New Radiopharmaceuticals, Radiolabeled Monoclonal Antibodies for Cancer Diagnosis and Therapy, Studies on Cell and Animal Models, Kinetics of Tracers, Quality Control of Radiopharmaceuticals, Dosimetry.

In Vitro Applications: Tumor Markers, Radioimmunoassays, Cell Labeling Quality Control, Genetic Engineering.

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A comprehensive exhibition of equipment and radiopharmaceutical manufactures will be on display.

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Registrations and Fees: Members of the European Association of Nuclear Medicine (EANM), regularly registered, will have free admission to the Congress, provided that they present their 1988 Membership card at the Registration Desk, or send a copy to the Official Organizing Offices. EANM Members must pay their fees by April 15, 1988. New EANM membership applications will be accepted only until April 15, 1988.

The registration fees for non-members will be Lit. 220.000 + VAT by June 15, 1988 and Lit. 300.000 + VAT after June 15, 1988.

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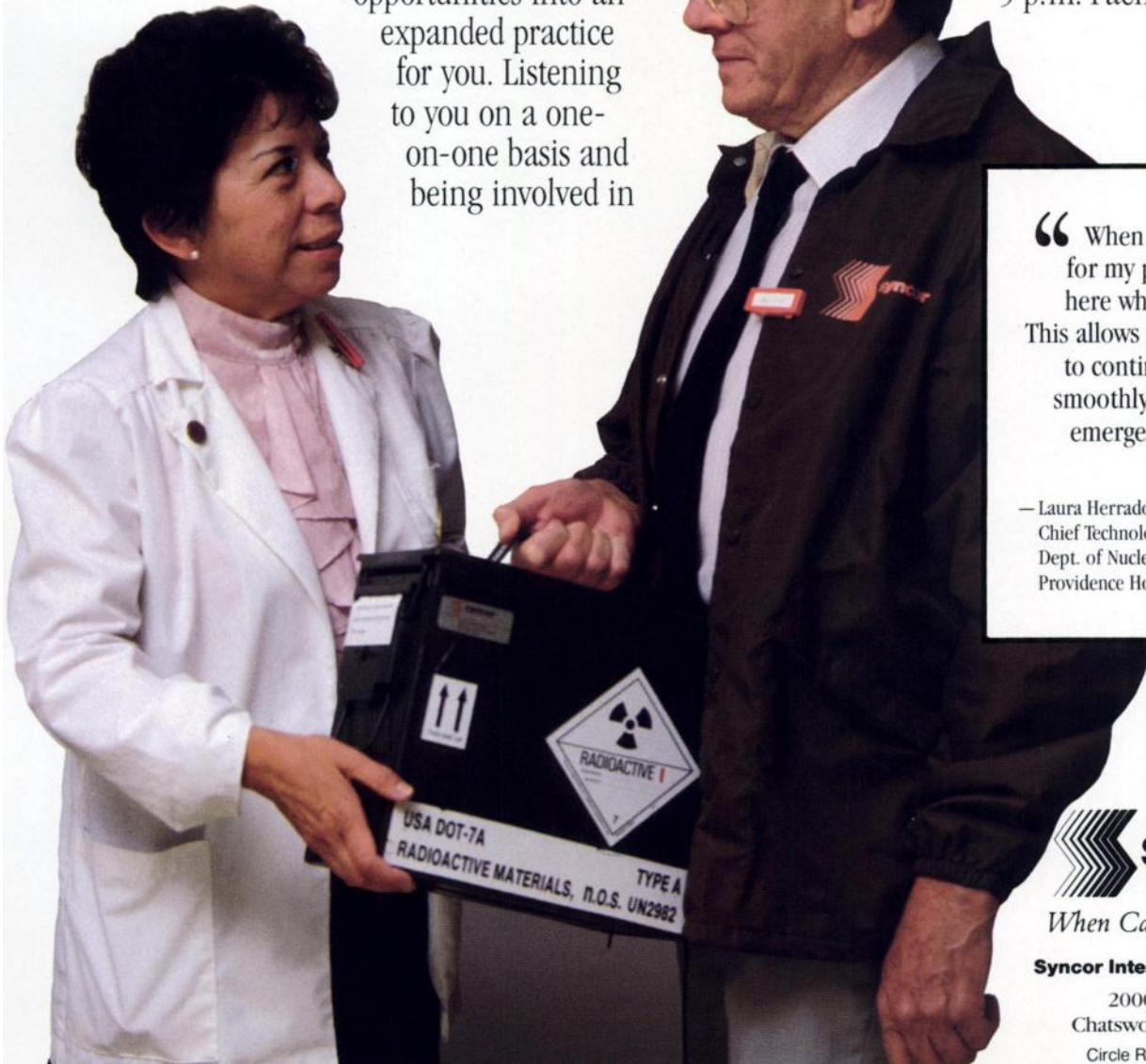


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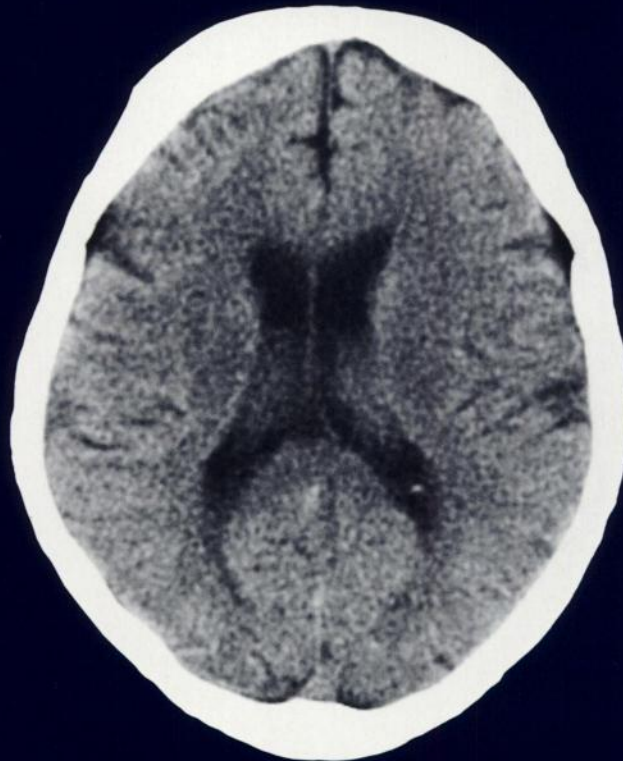
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Imaging the brain for evaluation of stroke

**Clinical impression:
Evolving CVA**

**CT interpretation:
Normal**



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

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

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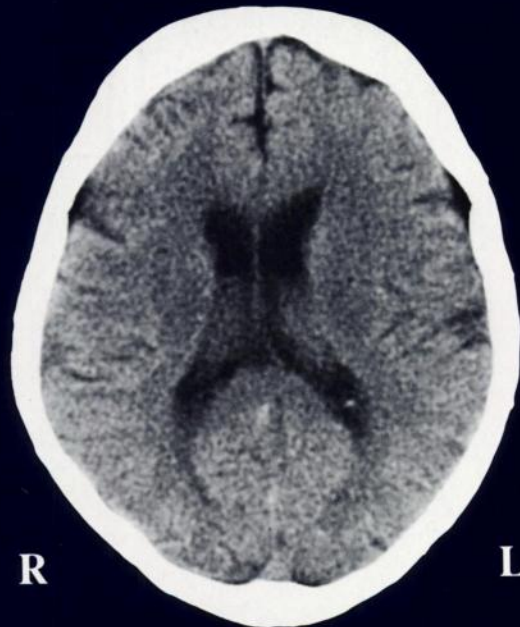
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Functional brain imaging in evaluation of stroke:

Early CT image: Normal

Admission CT of
Patricia M interpreted
as normal.



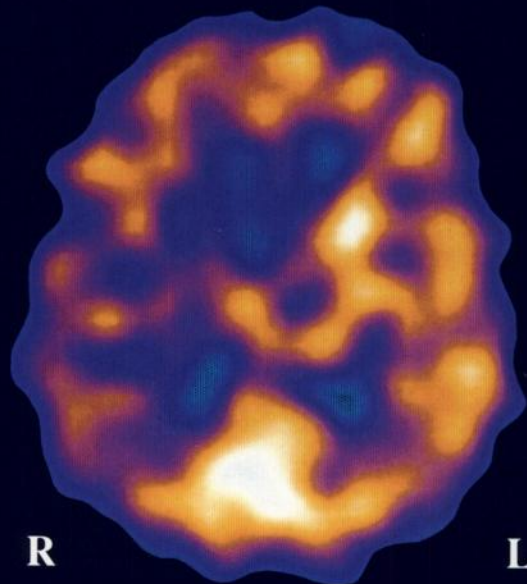
Limitations of stroke diagnosis with CT:

- Clinical decisions often made during first 48 hours, when CT often negative¹
- CT scan detects changes in brain density, not function¹
- Extent of lesion seen on early CT may correlate poorly with clinical signs¹

SPECTamine[®]

Iofetamine HCl I 123 Injection

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

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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.^{2,3} (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

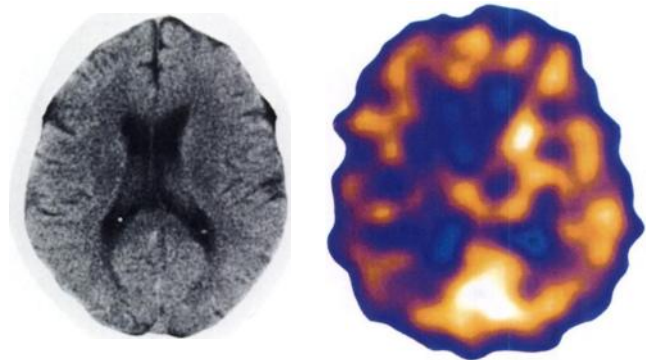


Fig 1. Despite a normal CT study upon admission (left), this patient with left-sided weakness demonstrated decreased right hemisphere uptake in a SPECT study (right) performed with SPECTamine.

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

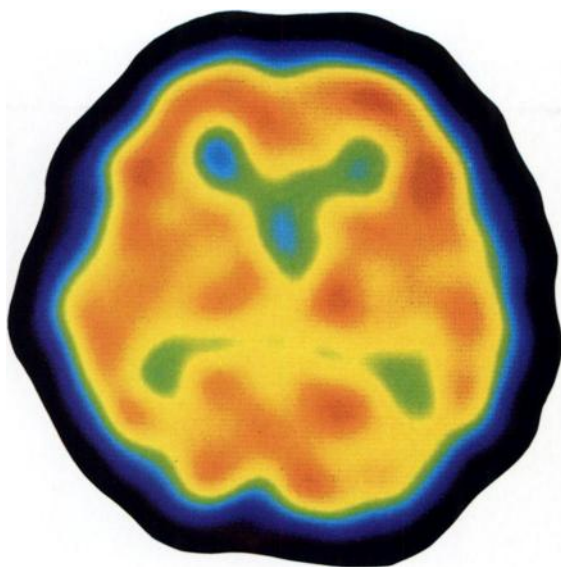


Fig 2. A normal SPECT study with iofetamine HCl I 123 shows relatively symmetrical uptake throughout the cerebral cortex.

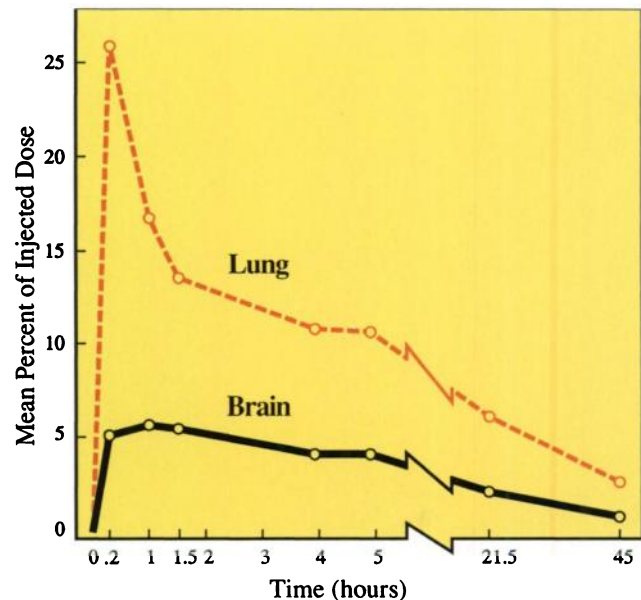


Fig 3. Activity in lung and brain after IV injection of SPECTamine.

For more information on SPECTamine® (Iofetamine HCl I 123 Injection), contact Medi-Physics SPECTamine® Hotline 1-800-451-7732.

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 iofetamine 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.

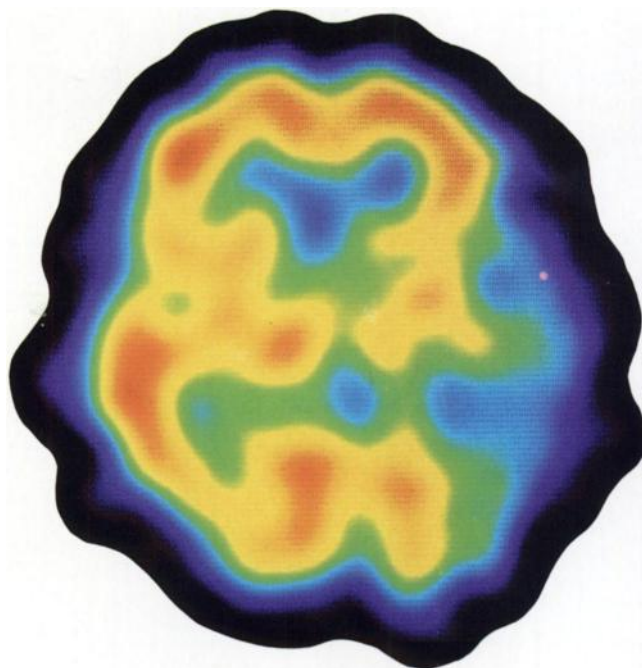


Fig 4. Iofetamine HCl I 123 study in patient with acute stroke demonstrates diminished uptake involving the left temporal, parietal region.

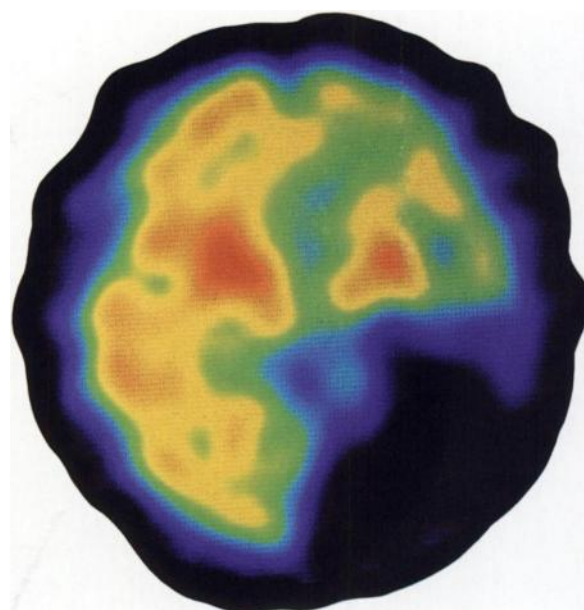


Fig 5. Iofetamine HCl I 123 study in patient with acute stroke demonstrates diminished uptake involving the left occipital region.

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SPECTAMINE®

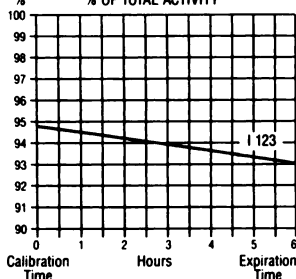
Iofetamine HCl I 123 Injection

DIAGNOSTIC—FOR INTRAVENOUS USE

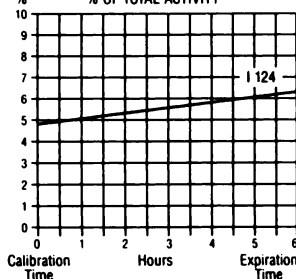
DESCRIPTION: SPECTAMINE® (Iofetamine HCl I 123 Injection, is supplied as a sterile, apyrogenic, aqueous, isotonic sodium chloride solution for intravenous administration. Each milliliter of the solution contains 37 megabecquerels (1 millicurie) of iofetamine HCl I 123 at calibration time, 0.15 milligram iofetamine HCl, 0.017 millimole sodium phosphate, and 8.0 milligrams sodium chloride for isotonicity. The pH is adjusted to 4.5-6.0 with sodium hydroxide or hydrochloric acid. SPECTAMINE contains no bacteriostatic preservative. The radiochemical composition at calibration time is not less than 94.7 percent I 123, not more than 4.8 percent I 124, and not more than 0.5 percent all others (I 125, I 126, I 130 and Te 121). The radiochemical composition at the 6-hour expiration time is not less than 93.1 percent I 123, not more than 6.2 percent I 124, and not more than 0.7 percent all others.

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

Graph 1. Radiochemical Concentration of I 123 and I 124



Graph 1a



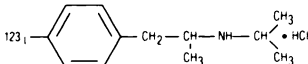
Graph 1b

The chemical names are 123I-4-[N-isopropyl-p-iodoamphetamine hydrochloride; (\pm)-4-(iodo-123I)- α -methyl-N-(1-methylethyl)benzenethanamine hydrochloride; and (\pm)-p-iodo-123I-N-isopropyl- α -methylphenethylamine hydrochloride.

Molecular formula: C₁₂H₁₉N₂I₂₃Cl

Molecular weight: 335.74

Structural formula:



PHYSICAL CHARACTERISTICS: Iodine I 123 decays by electron capture with a physical half-life of 13.2 hours¹. The photon that is useful for detection and imaging studies is given in Table 1. The user should be aware that I 124, which is present as a long-lived contaminant in I 123, has a high energy gamma ray (602.7 keV) with an absolute intensity of 59%; thus, a higher energy collimator may be advantageous.

Table 1. Principal Radiation Emission Data¹

| Radiation | Mean %/Disintegration | Mean Energy (keV) |
|-----------|-----------------------|-------------------|
| Gamma-2 | 83.4 | 159 |

¹ Kocher, David C. "Radioactive Decay Data Tables." DOE/TIC-11026, 122 (1981).

EXTERNAL RADIATION: The specific gamma ray constant for I 123 is 1.60 R/h-mCi at 1 cm. The first half-value thickness of lead (Pb) for I 123 is 0.005 cm. A range of coefficients of attenuation of the radiation emitted by this radionuclide can be achieved by the interposition of various thicknesses of Pb and is shown in Table 2. For example, the use of 1.63 cm of Pb will decrease the external radiation exposure by a factor of about 1,000.

Table 2. Radiation Attenuation by Lead (Pb) Shielding²

| Shield Thickness (Pb) cm | Coefficient of Attenuation |
|--------------------------|----------------------------|
| 0.005 | 0.5 |
| 0.10 | 10-1 |
| 0.88 | 10-2 |
| 1.63 | 10-3 |
| 2.48 | 10-4 |

² Method of calculation: Data supplied by Oak Ridge Associated Universities, Radiopharmaceutical Internal Dose Information Center, 1984

CLINICAL PHARMACOLOGY: Iofetamine HCl I 123 is lipid soluble. In humans, the percentages remaining in the brain, liver and lungs, respectively, at 1, 5 and 22 hours, were: 5.7, 4.1, 2.1; 12.5, 14.1, 5.5; and, 16.8, 10.6, 6.1. None of these studies demonstrated any constant plateaus in concentration within any organ. Animal studies have shown that iofetamine HCl I 123 is removed from the circulation via first pass metabolism primarily by the brain and liver; the extraction fraction in the brain is 74-92%. This metabolism may be partially dependent on pH. The ratio of concentration in gray to white matter in primate

studies varied considerably with time, being 2.4 at 15 minutes, 2.2 at 1 hour, 1.8 at 4 hours and 0.6 at 24 hours. Animal data suggest that retention in the brain is

due to binding by relatively non-specific, high-capacity binding sites.

Iofetamine HCl I 123 distributes rapidly from the blood into body tissues. The concentration in the blood falls to about 3-8.5% of the injected dose, 6-10 minutes after administration and to about 2.5% after 20 minutes. The apparent volume of distribution is

Table 3. Physical Decay Chart:

| Hours | Fraction Remaining |
|-------|--------------------|
| 0* | 1.000 |
| 1 | 0.949 |
| 2 | 0.900 |
| 3 | 0.854 |
| 4 | 0.811 |
| 5 | 0.769 |
| 6 | 0.730 |

*Calibration Time

582 ± 146 liters (mean ± S.D.) and less than 10% is bound to plasma proteins. Elimination of the drug from the plasma is biexponential with a fast biological half-life of 1.6 ± 1.2 hours and a slow biological half-life of 10.9 ± 6.1 hours. The total plasma clearance and urinary clearance are 1550 ± 500 and 21 ± 12 ml per minute, respectively. The principal route of excretion is renal. About 20% of the dose is excreted after one day, 40% after two days and 48% after three days. Most of the radioactivity in plasma beyond 24 hours following the dose is due to metabolites of the parent drug which have comparatively slower clearance. Therefore, plasma radioactivity may appear approximately similar from one hour to 96 hours post dosing.

The two major metabolites are p-iodoamphetamine and p-iodobenzoic acid. Plasma p-iodoamphetamine levels initially increase up to 8 to 10 hours post-dosing and then decrease with a terminal half-life of approximately 48 hours. p-iodoamphetamine is further metabolized to p-iodobenzoic acid. Continuous accumulation of p-iodobenzoic acid in plasma is noticed up to 44 hours post dose; it is excreted in the urine as p-iodohippuric acid after conjugation with glycine.

INDICATIONS AND USAGE: SPECTAMINE (Iofetamine HCl I 123 Injection) is recommended for use as a lipid-soluble brain-imaging agent. It has been shown to be useful in the evaluation of nonlacunar stroke especially when used within 96 hours of onset of focal neurological deficit. The rates of agreement between abnormal images and the neurological examination suggestive of ischemic cerebrovascular insufficiency, appear to increase with the severity of symptoms. Its usefulness for the measurement of cerebral blood flow has not been established.

CONTRAINDICATIONS: None known.

WARNINGS: SPECTAMINE (Iofetamine HCl I 123 Injection) should not be administered to individuals with known hypersensitivity to sympathomimetic amines or to those individuals taking monoamine oxidase inhibitors.

PRECAUTIONS: General Some primate (Macaca fascicularis) studies have shown marked eye uptake of iofetamine HCl I 123. Localization has not been studied in the isolated human eye although in vivo images suggest the concentration of iofetamine HCl I 123 is below the limit of detection. Individual human variations in pharmacokinetics of this drug and the long-term effect on the eye have not been elucidated.

The contents of the vial are radioactive. Adequate shielding of the preparation must be maintained at all times.

Do not use after the expiration time and date (6 hours after calibration time) stated on the label.

Potassium Iodide Oral Solution should be administered before the examination to minimize thyroid uptake of iodine 123.

The prescribed iofetamine HCl I 123 dose should be administered as soon as practical from the time of receipt of the product (i.e., as close to calibration time or before, if possible), in order to minimize the fraction of radiation exposure due to relative increase of radionuclidic contaminants with time.

To minimize radiation dose to the bladder, the patient should be encouraged to drink fluids and void frequently.

SPECTAMINE, as well as other radioactive drugs, must be handled with care. Appropriate safety measures should be used to minimize radiation exposure to clinical personnel. Care should also be taken to minimize radiation exposure to the patient consistent with proper patient management.

Radiopharmaceuticals should be used only by physicians who are qualified by training and experience in the safe use and handling of radionuclides, and whose experience and training have been approved by the appropriate government agency authorized to license the use of radionuclides.

Drug Interactions: There has been a single report of elevated diastolic hypertension (about 30 mm Hg) occurring 18 hours after administration of SPECTAMINE in a patient maintained on therapeutic doses of valproic acid.

Concurrent use of monoamine oxidase (MAO) inhibitors and compounds containing the amphetamine structure has been known to result in hypertensive crisis. Caution, therefore, should be exercised when administering SPECTAMINE (Iofetamine HCl I 123 Injection) to individuals taking medications known to potentiate the effects of sympathomimetic amines. It is recommended that SPECTAMINE not be administered during or within 14 days following administration of MAO inhibitors.

Sympathomimetic amines may affect the biodistribution of SPECTAMINE and, thus, may influence the image quality and diagnostic utility of the image.

Carcinogenesis, Mutagenesis, Impairment of Fertility No long-term animal studies have been performed to evaluate carcinogenic potential, mutagenic potential or effects on fertility in male or female animals. The Ames test was negative for mutagenic effects.

Pregnancy Category C Animal reproduction studies have not been conducted with SPECTAMINE. It is also not known whether SPECTAMINE can cause fetal harm when administered to a man or a pregnant woman or can affect reproduction capacity. SPECTAMINE should be given to a pregnant woman only if clearly needed.

Ideally, examinations using radiopharmaceuticals, especially those elective in nature, in women of childbearing capability, should be performed during the first few (approximately ten) days following the onset of menses.

Nursing Mothers Since iodine I 123 is excreted in human milk, formula feeding should be substituted for breast feeding if the agent must be administered to the mother during lactation.

Pediatric Use Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: In a clinical study in 93 patients with sudden onset of focal neurological deficit, e.g., cerebral infarction, 7 patients died within 2 to 55 days after administration. The deaths were considered to be a result of the disease state. Although there was no concurrent control group, statistics from historical controls support this evaluation.

There is evidence suggesting that the administration of 1 to 2 milligrams of iofetamine HCl, the carrier in SPECTAMINE, may 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 also was reported several hours after the use of SPECTAMINE in a patient with a coincidental upper respiratory infection.

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

DOSAGE AND ADMINISTRATION: The recommended intravenous dose for

SPECTAMINE (Iofetamine HCl I 123 Injection) in the average adult patient (70 kg) is 111 to 222 megabecquerels (3 to 6 millicuries).

It is desirable to decrease thyroid accumulation of radioactive iodine by administering three drops of Potassium Iodide Oral Solution 1/2-1 hour before injection of SPECTAMINE.

Use contents of the vial up to six (6) hours after calibration time and date. Thereafter, discard the vial with its contents in accord with standard safety procedures.

SPECTAMINE is supplied as a sterile, apyrogenic, aqueous, isotonic sodium chloride solution in vials. Aseptic procedures and a shielded syringe should be employed when withdrawing doses for administration. The user should wear waterproof gloves during the administration procedure.

The patient dose should be measured by a suitable radioactivity calibration system immediately before administration.

SPECTAMINE should be administered by direct venipuncture. Imaging is optimal at about 10 minutes to 5 hours after injection of the drug.

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration whenever solution and container permit.

RADIATION DOSIMETRY: The estimated absorbed radiation dose to an average adult patient (70 kg) from an intravenous administration of a maximum recommended dose of 222 megabecquerels (6 millicuries) of SPECTAMINE at time of calibration and time of expiration are shown in Table 4. Radiation dose estimates include contributions from I 124, I 125, I 126, and I 130 impurities. Estimates are based on complete thyroid blockage.

Table 4. Estimated Absorbed Radiation Dose¹

| Target Organ | At Calibration Time | | At Expiration Time (6 hours after calibration) | |
|--------------|---------------------|-------------------|--|-------------------|
| | mGy/222 MBq | rad/6 mCi | mGy/222 MBq | rad/6 mCi |
| Brain | 5.8 | 0.58 | 6.6 | 0.66 |
| Retina | 44 | 4.4 | 47 | 4.7 |
| Lens | 7.6 | 0.76 | 9.0 | 0.90 |
| Lung | 14 | 1.4 | 16 | 1.6 |
| Liver | 13 | 1.3 | 14 | 1.4 |
| Kidneys | 4.2 | 0.42 | 4.7 | 0.47 |
| Bladder | 22 | 2.2 | 25 | 2.5 |
| Thyroid | 2.0 ² | 0.20 ² | 2.3 ² | 0.23 ² |
| Testes | 3.8 | 0.38 | 4.4 | 0.44 |
| Ovaries | 4.7 | 0.47 | 5.3 | 0.53 |
| Red Marrow | 5.2 | 0.52 | 5.8 | 0.58 |
| Total Body | 4.6 | 0.46 | 5.2 | 0.52 |

¹ Data supplied by Oak Ridge Associated Universities, Radiopharmaceutical Internal Dose Information Center, 1987. Rocky Mountain Medical Physics, Inc., Lakewood, Colorado, 1985

² If thyroid uptake of iodine 123 is not blocked with potassium iodide and thyroid uptake is 25%, the estimated absorbed radiation dose to the thyroid is 370 milligrays (37 rads) if 222 MBq (6 mCi) of the drug is administered at calibration time and 470 milligrays (47 rads) if it is administered at expiration time.

HOW SUPPLIED: SPECTAMINE is supplied in nominal 3.5 ml vials as a sterile, apyrogenic, aqueous, isotonic sodium chloride solution for intravenous injection. Each milliliter contains 37 megabecquerels (1 mCi) of iofetamine HCl I 123 at calibration time.

It is available in individual vials containing 111 megabecquerels (3 mCi) of iofetamine HCl I 123 at calibration time in a volume of 3 ml.

Vials are packaged in individual lead shields with plastic outer container.

Special Handling and Precautions The contents of the vial are radioactive and adequate shielding and handling precautions must be maintained. The user should wear waterproof gloves and use shielding at all times when handling the vial. National Drug Code number is: 17156-211-09

Storage Store vial in its lead shield at a temperature of 5-30°C. Do not freeze.

Disposal Users should monitor the amount of radioactivity present prior to disposal of this product. Storage and disposal of SPECTAMINE should be in accordance with the conditions of Agreement State or Licensing State licenses and regulations, or other regulatory agency authorized to license the use of radionuclides.

Issued December 1987

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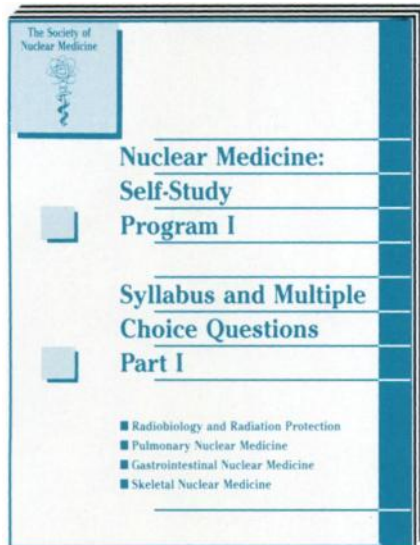


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Like the earlier *Nuclear Medicine Review Syllabus*, the Nuclear Medicine: Self-Study Program syllabus has been designed to strengthen your knowledge of nuclear medicine, sharpen your clinical skills, and keep you abreast of recent developments. The 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.

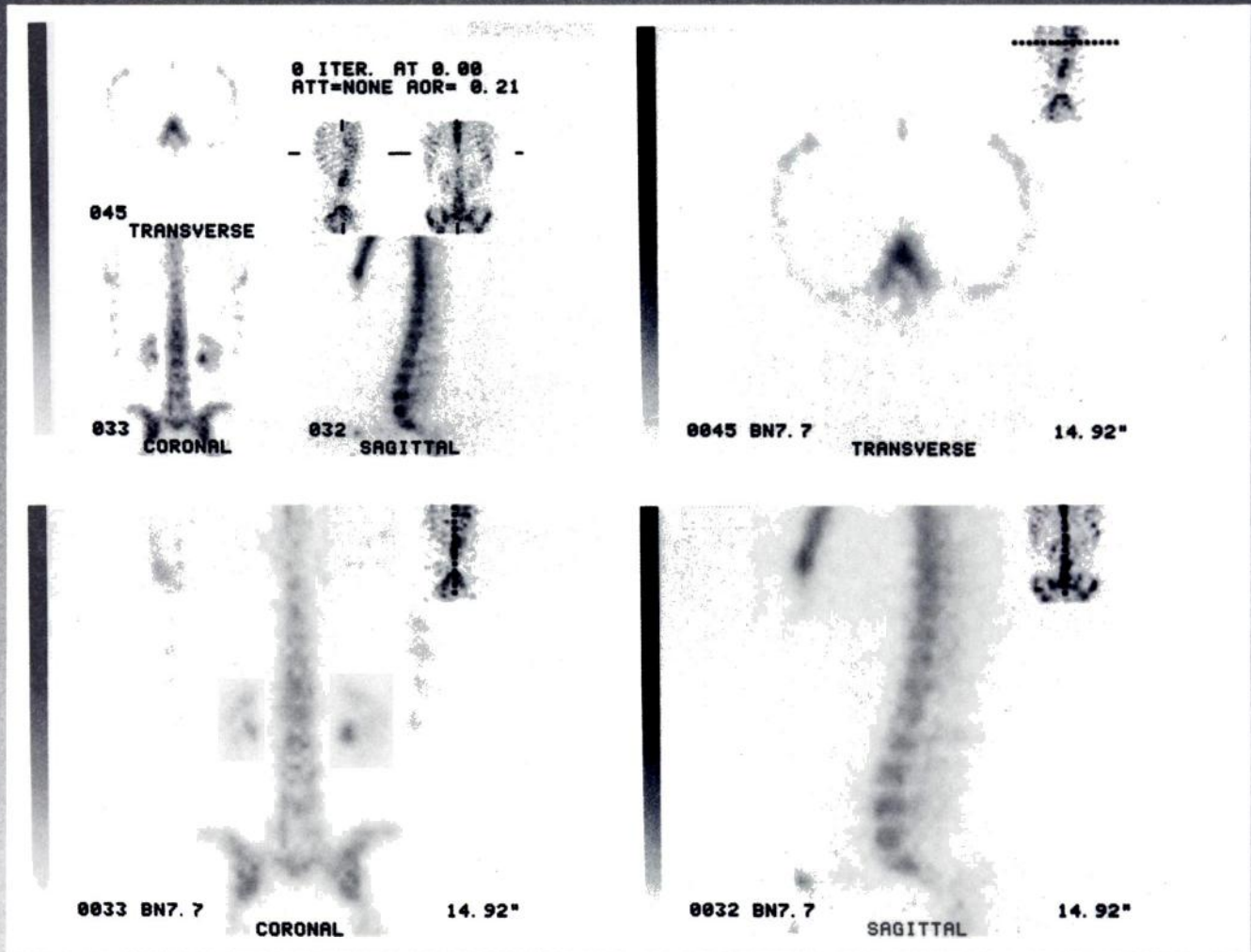
The first volume of this program, *Nuclear Medicine: Self-Study Program I*, will cover four areas of nuclear medicine: Radiobiology and Radiation Protection, including regulatory matters; Gastrointestinal Nuclear Medicine; Skeletal Nuclear Medicine; and Pulmonary Nuclear Medicine. Both the syllabus and 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.

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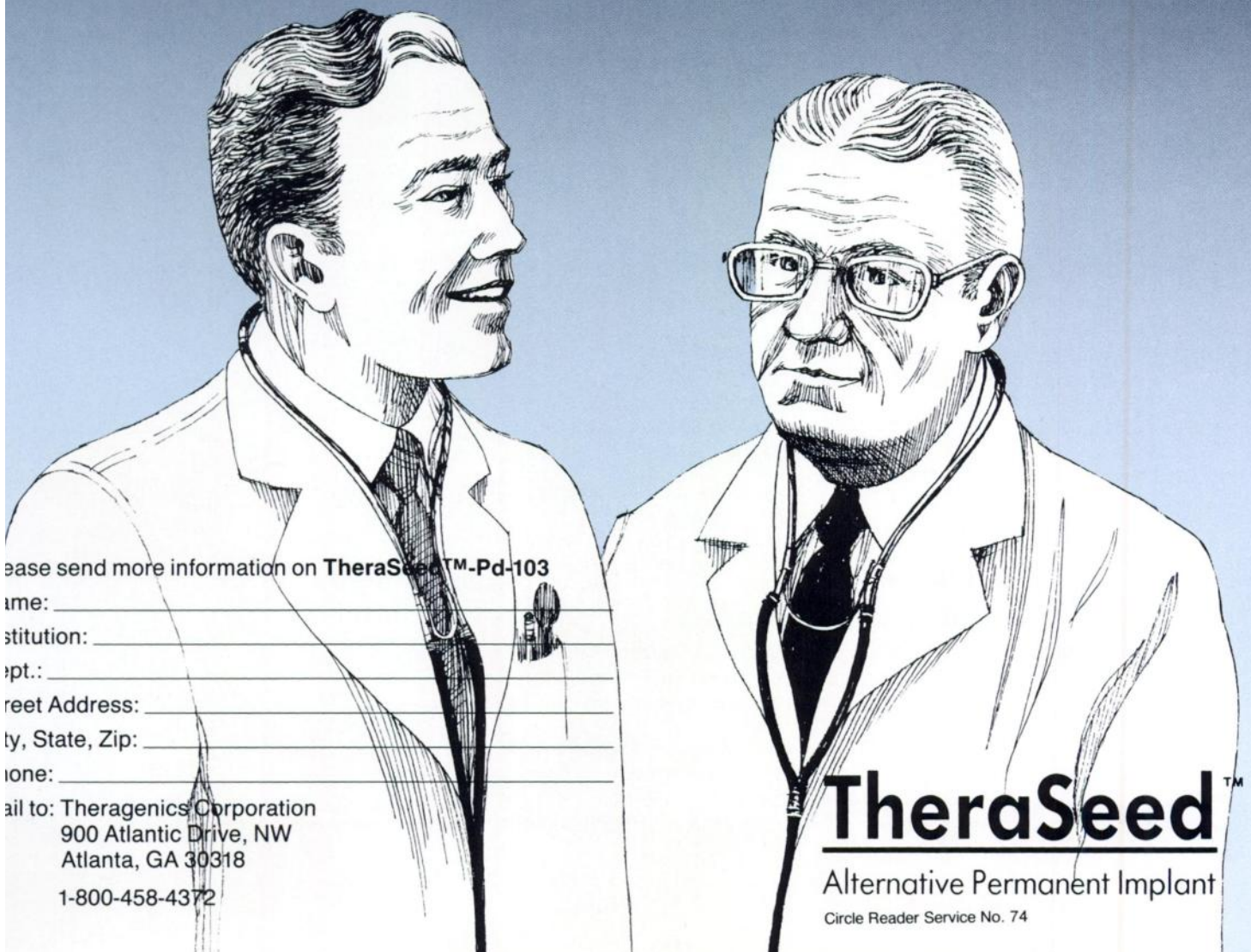
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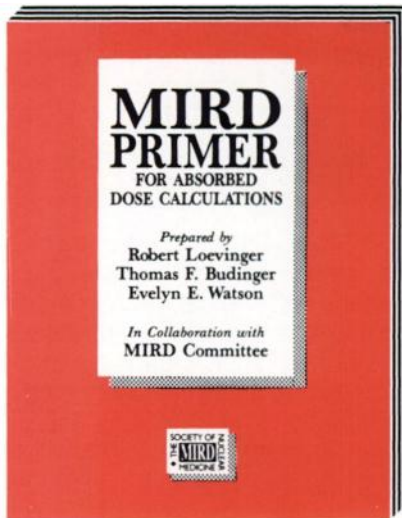
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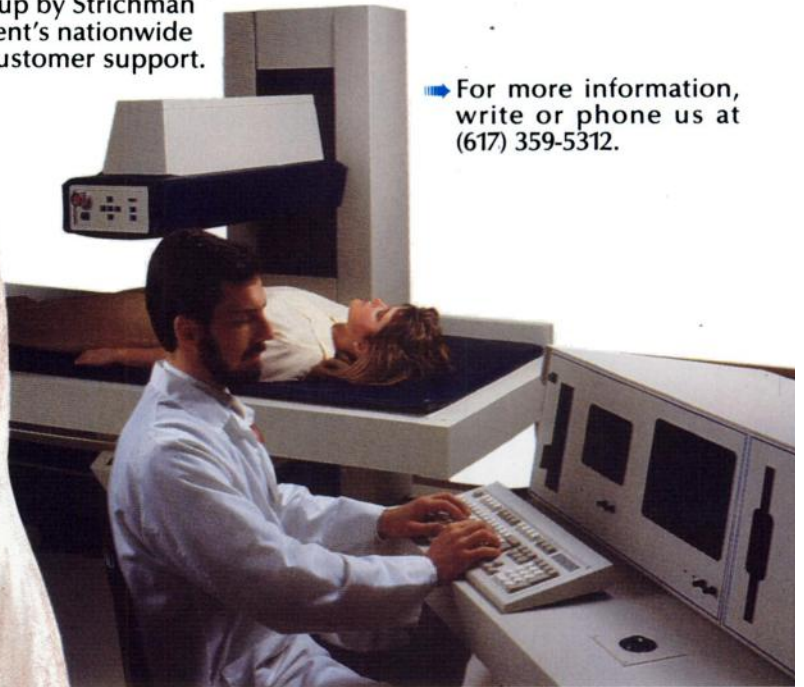
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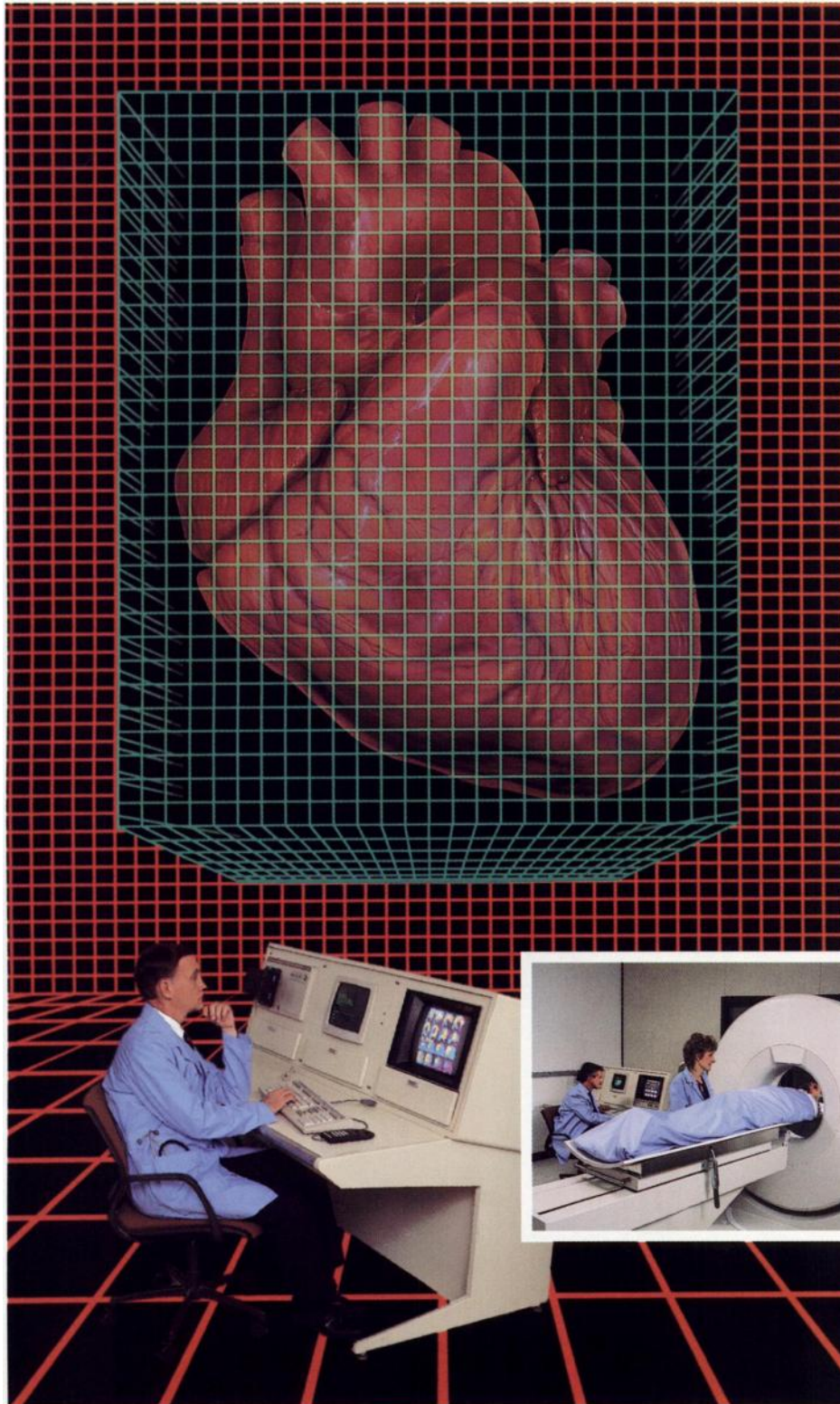
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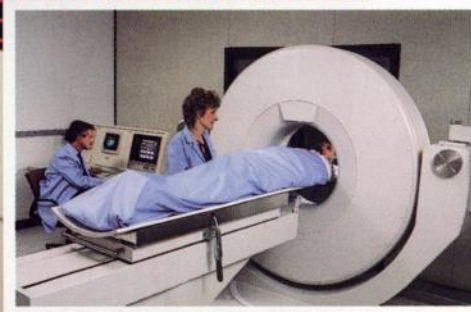
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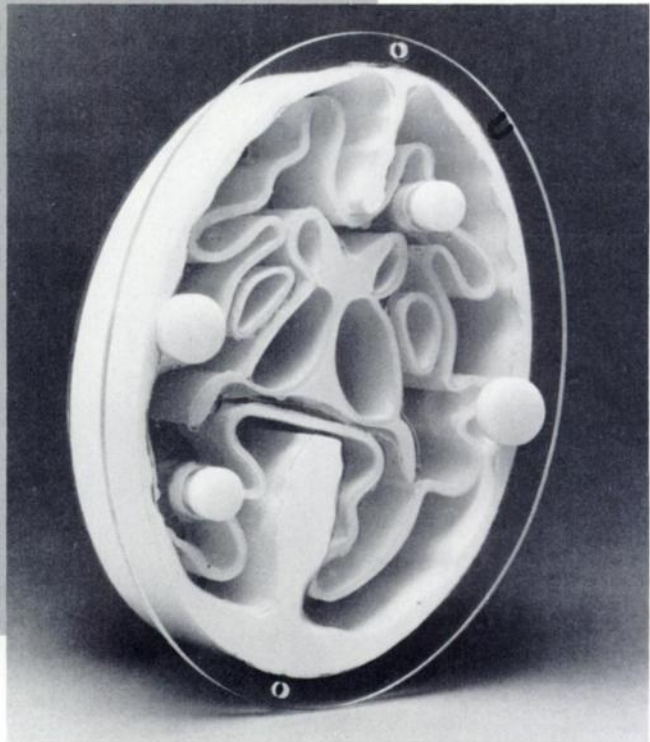
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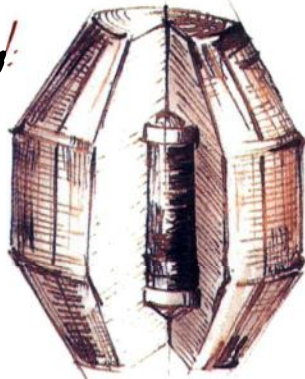
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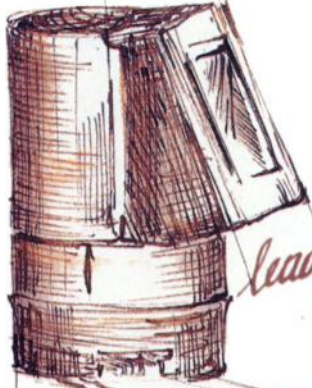
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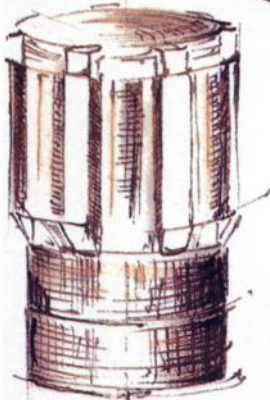


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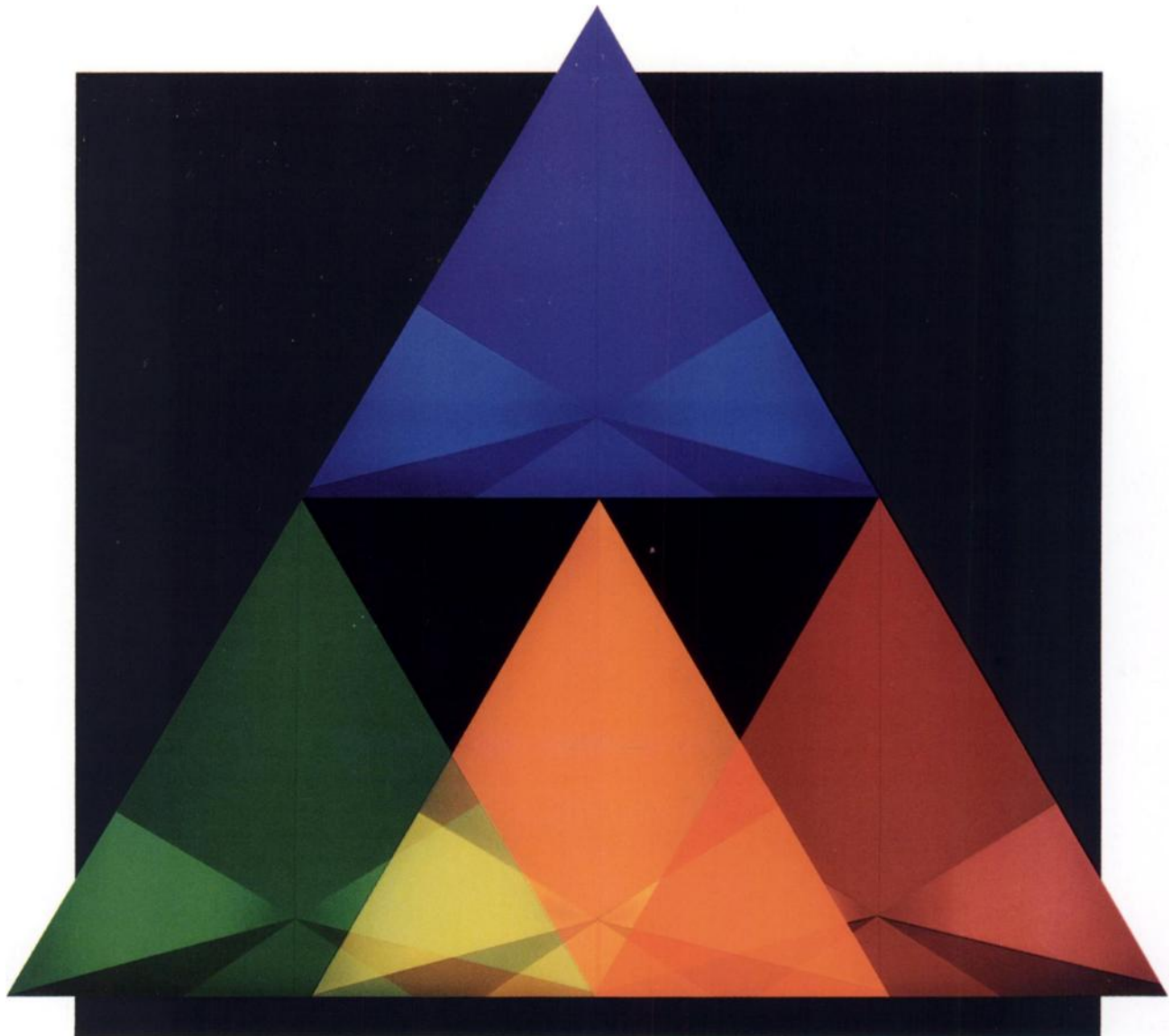
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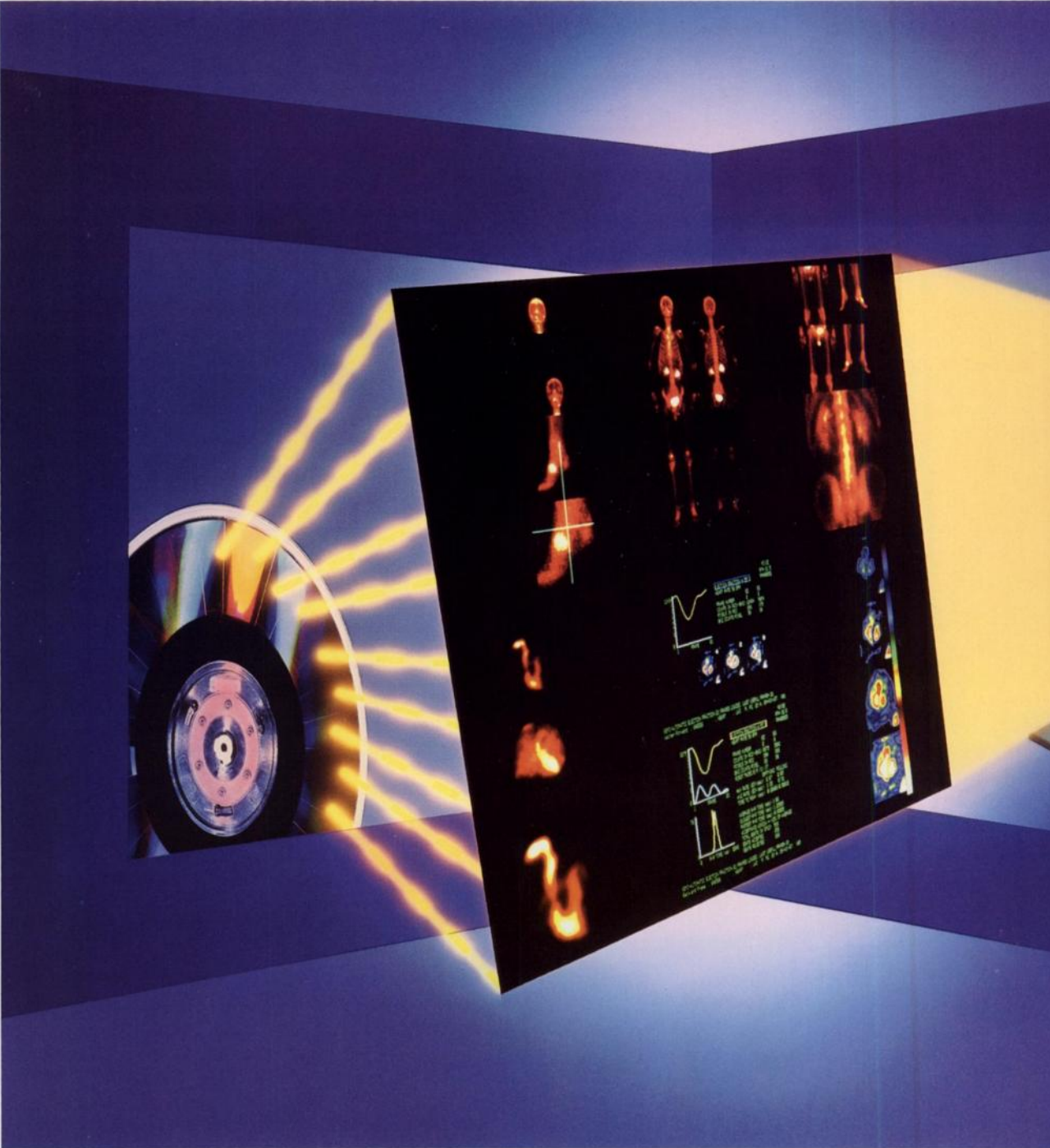
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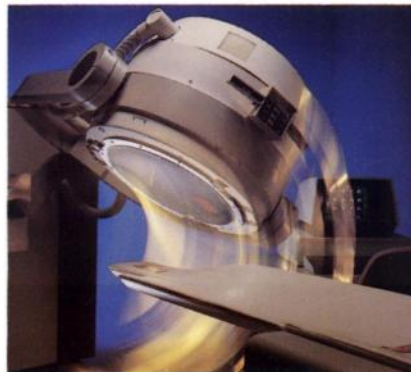
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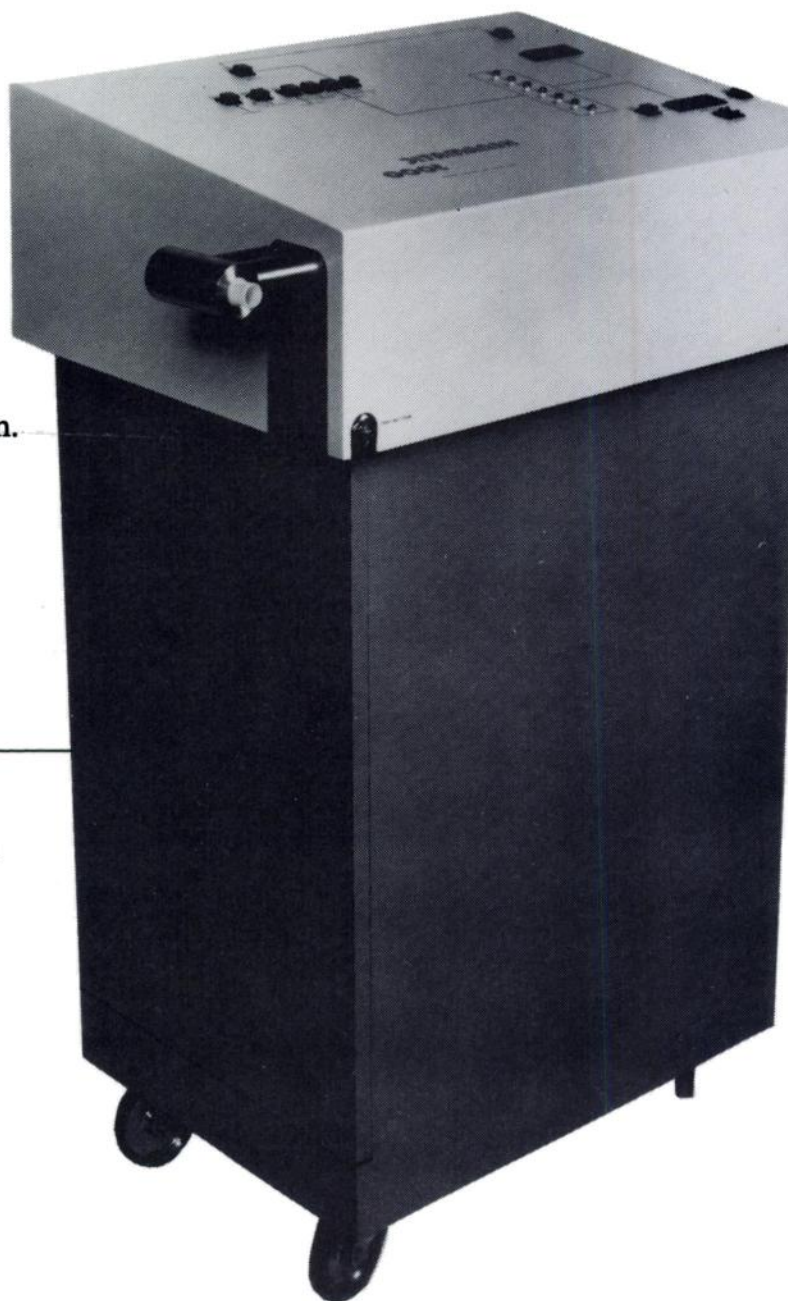
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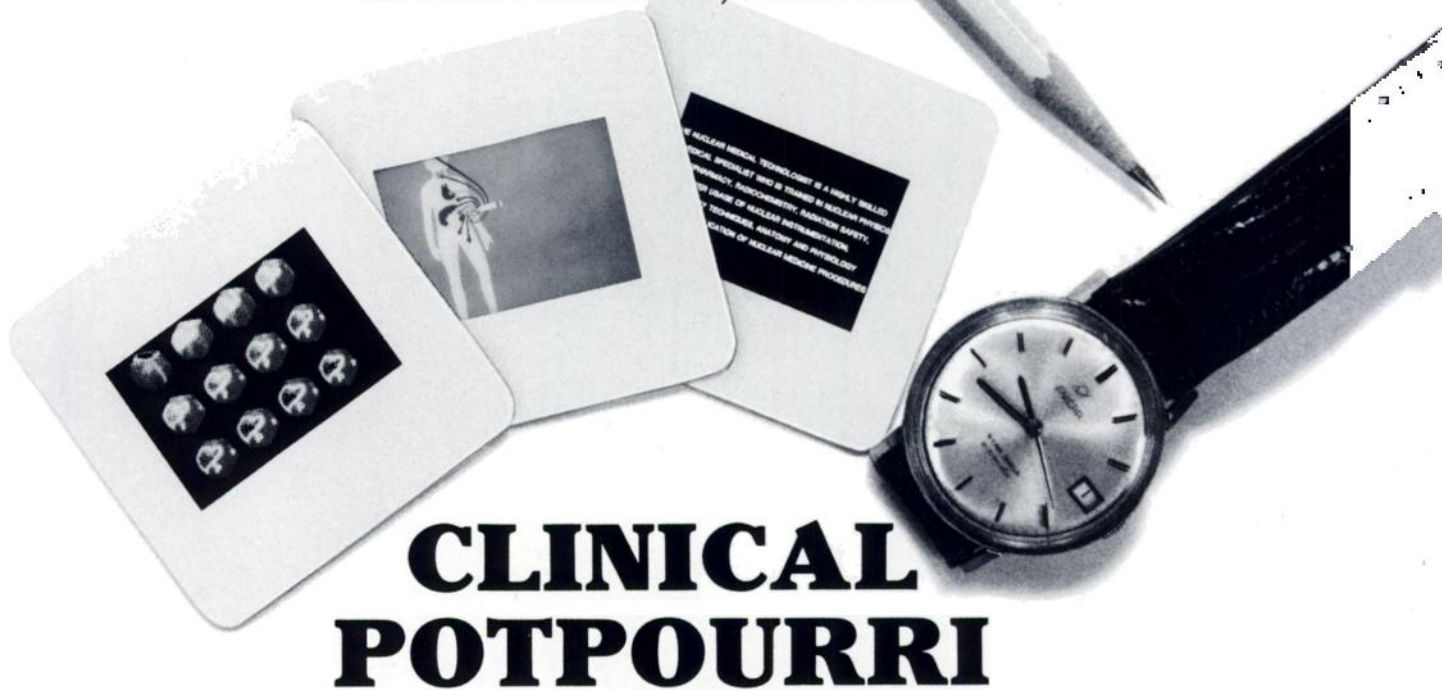
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Announcement and Invitation to Participate in a New Clinical Teaching Session at the SNM 35th Annual Meeting in San Francisco, California



CLINICAL POTPOURRI

The Scientific Program Committee solicits contributions for a new type of teaching session to be held at the 35th Annual Meeting of the Society of Nuclear Medicine in San Francisco on June 14-17, 1988. Clinical Potpourri will be a session or sessions consisting of brief presentations of clinical topics by attendees followed by an audience discussion. The subject matter should be clinical and presented within two minutes with three minutes of discussion. Only 35mm slides are permitted. Appropriate topics include unusual variations of a common topic, new observations, artifacts, emphasis of a known but commonly overlooked phenomenon, etc. If you are interested in presenting at this session, please complete the coupon and return it no later than April 15, 1988 to: **The Education & Meetings Department, The Society of Nuclear Medicine, 136 Madison Avenue, New York, NY 10016-6760.**

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.

| |
|--|
| Name: _____ |
| Address: _____ _____ |
| Subject of Presentation (15 words or less): _____ _____ _____ _____ |

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These 5 books will give you the answers when you need them!

■ **RADIATION PROTECTION IN THE RADIOLOGIC AND HEALTH SCIENCES, 2nd ed.**

By MARILYN 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, MD, *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. . . Few 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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The Society of
Nuclear Medicine

35th ANNUAL MEETING

Tuesday, June 14–
Friday, June 17, 1988

San Francisco, CA
Moscone Convention
Center

Call for Abstracts for Works-in-Progress

The 1988 Scientific Program Committee solicits the submission of abstracts from members and nonmembers of The Society of Nuclear Medicine for the 35th Annual Meeting in San Francisco. Works-in-Progress accepted for the program will be published in a separate on-site show publication that will be distributed to all those who attend the meeting. Original contributions on a variety of topics related to nuclear medicine will be considered, including:

- INSTRUMENTATION
- COMPUTERS AND DATA ANALYSIS
- IN VITRO RADIOASSAY
- RADIOPHARMACEUTICAL CHEMISTRY
- DOSIMETRY/RADIOBIOLOGY
- NUCLEAR MAGNETIC RESONANCE
- CLINICAL SCIENCE APPLICATIONS
 - Bone/Joint
 - Cardiovascular
 - Endocrine
 - Gastroenterology
 - Infectious Disease and Immunology
 - Neurology
 - Oncology/Hematology
 - Pediatrics
 - Pulmonary
 - Renal/Hypertension

Authors seeking publication for the full text of their papers are strongly encouraged to submit their work to the *JNM* for immediate review.

A complete educational program for technologist will be offered and technologists are encouraged to submit abstracts of their work for consideration.

The official abstract form for Works-in-Progress may be obtained from the October 1987 issue of the *JNM* or by calling or writing:

The Society of Nuclear Medicine

Att: Abstracts

136 Madison Avenue, New York, NY 10016-6760

Tel: (212)889-0717

Deadline for Works-in-Progress is Thursday, April 7, 1988

CALL FOR APPLICANTS

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NUCLEAR MEDICINE: SELF-STUDY PROGRAM

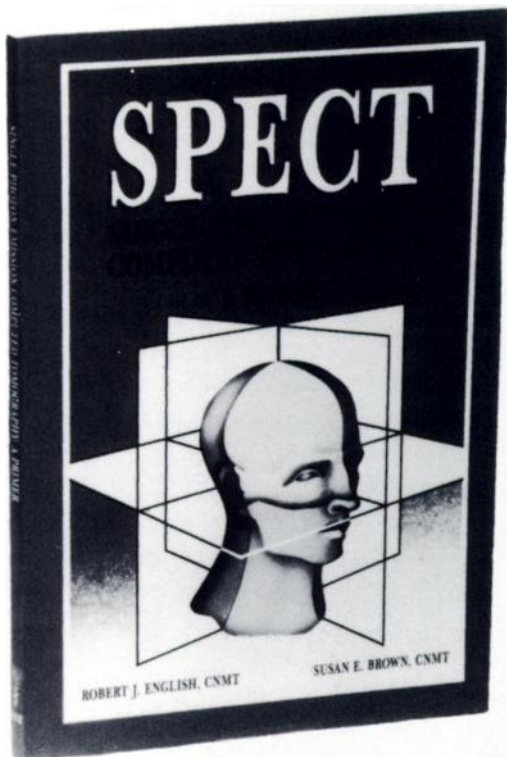
The Publications Committee of the Society of Nuclear Medicine is accepting applications for Co-Editor of its series of Self-Study Programs on Nuclear Medicine.

Each Self-Study Program will consist of a syllabus, questions, and answer sheet (Part 1), and a set of answers with a critique of each question (Part 2). Category 1 CME credit and psychometric analysis will be available to those who submit answer sheets.

The first volume of *Nuclear Medicine: Self-Study Program* will be published in 1988; others in the series will follow yearly.

Applicants should be physicians with a broad clinical nuclear medicine practice as well as organizational and editorial skills. If you would like to participate in or would like more information about this unique and important educational effort of the Society, please contact:

Richard L. Witcofski, PhD
Chairman, Publications Committee, SNM
Department of Radiology
Bowman Gray School of Medicine
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The Primer answers the nuclear medicine technologist's fundamental questions about SPECT, as both a textbook and as an extension of any manufacturer's operating manual. Designed as a study guide for SPECT technology and SPECT applications, this 1986 book also includes study questions, a glossary, and recommended reading lists at the end of each chapter. 168 pp, 6 x 9 softcover.

SPECIAL OFFER: Bulk order rates make this sought-after information available to everyone. By ordering in bulk, these copies can be distributed to an entire sales force, nuclear medicine departments, residents, and students. Single-copy rate: \$15.00, non-members: \$17.00; quantities of 10 or more: \$13.00, 50 or more: \$12.00, 100 or more: \$10.00.

ORDERING INFORMATION: Quantities under 10, add \$2.50 postage and handling for each book ordered. Bulk orders, please call for postage and handling charges. Prepayment required in U.S. funds drawn on U.S. banks only. For payments made in U.S. dollars, but drawn on a foreign bank, add a bank processing fee of \$4.50 for Canadian bank drafts, \$40.00 for all other foreign bank drafts. Check or purchase order must accompany all orders. Make checks payable to: The Society of Nuclear Medicine. *Prices are in U.S. dollars and are subject to change without notice.*

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LINE-ADS: \$13.50 (JNM) or \$13.00 (JNMT) per line or fraction of line (approx. 50 characters per line, including spaces). Please allow 28 characters for the first line which will appear in capital letters. Special rates for SNM members on **Positions Wanted:** \$10.00 per line. *Note:* Box numbers are available for the cost of the two lines required.

EXAMPLES

NUCLEAR MEDICINE TECHNOLOGIST. Registered or registry eligible technologist to work in private office. Special emphasis on nuclear cardiology. Salary negotiable. Send resume to: Box 1203, The Society of Nuclear Medicine, 136 Madison Ave., 8th fl., New York, NY 10016-6760. EOE.

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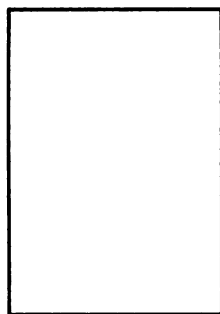
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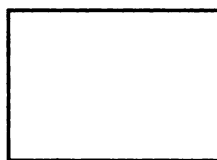
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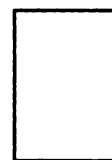
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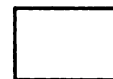
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Positions Available

Fellowship

NUCLEAR MEDICINE/MAGNETIC RESONANCE FELLOWSHIP. The Department of Radiology at The University of Texas Health Science Center at Dallas is offering a 1- or 2-year fellowship to begin July 1, 1988 to include training in nuclear medicine and magnetic resonance imaging. Strong emphasis is placed on physiologic image interpretation and quantitation as well as correlation with other diagnostic modalities. Applicants must have completed a minimum of 2 years in an accredited diagnostic radiology residency program and have demonstrated an interest in research. Previous fellowship experience or MD/PhD desired but not required. Send CV to: William A. Erdman, MD, Director, Nuclear Medicine and Body MR Research, Dept. of Radiology, University of Texas Health Science Center at Dallas, 5323 Harry Hines Blvd., Dallas, TX 75235. An Affirmative Action/Equal Opportunity University.

Monoclonal antibody diagnosis and treatment of cancers. Unique FELLOWSHIP now available for an outstanding physician candidate desiring research experience with radiolabeled monoclonal antibodies. The flexible fellowship allows for basic lab experience in antibody production, characterization, and radiolabeling, as well as for clinical experience in patient antibody imaging, dosimetry, and therapy in a state-of-the-art nuclear medicine division. Applicant must be U.S. citizen. Please send CV to: David Kuhl, MD, Div. of Nuclear Medicine, University of Michigan Medical Center, Ann Arbor, MI 48109-0028. Non-discrim. A/A Employer.

FELLOWSHIP IN NUCLEAR MEDICINE. University of Missouri, Columbia. One- or two-year clinical and research fellowship in nuclear medicine. The fellowship is integrated between university and adjacent Harry S. Truman Memorial Veterans Hospitals. Research opportunities include basic science and clinical work with new single photon emitting brain blood flow agents and a range of therapeutic radiopharmaceuticals. Facilities include basic science laboratories,

full SPECT imaging systems at both hospitals, and opportunities for CT, ultrasound, and MR imaging correlations. Clinical program has strong cardiovascular nuclear medicine emphasis. Candidates must be Board certified or eligible in nuclear medicine, and licensed to practice medicine in Missouri. Send letter of interest (including list of references) to: Richard A. Holmes, MD, Chief of Nuclear Medicine, University of Missouri Hospital and Clinics 2N19 Medical Sciences, 1 Hospital Dr., Columbia, MO 65212. EOE.

Physician

NUCLEAR MEDICINE PHYSICIAN. Vacancy exists for physician Board certified or Board eligible in nuclear medicine. Position assigned to newly constructed nuclear medicine department in 440-bed, general medical/surgical veterans administration medical center. Latest state-of-the-art equipment. Wilkes-Barre rated as ninth best place to live in U.S. by *Money* magazine, and tenth healthiest by *Health* magazine. Low housing costs; low crime rate; excellent education system. Within minutes of Pocono Mountain ski resorts and 2 hours from Philadelphia and New York City. Excellent fringe benefits. Salary commensurate with experience. Malpractice insurance provided. Travel and transportation paid. Any state license acceptable. Call or write: Ed Riley, Personnel Service, VA Medical Center, Wilkes-Barre, PA 18711; (717)821-7208. An Equal Opportunity Employer.

We are seeking an experienced Board eligible or certified nuclear medicine PHYSICIAN to join our Clinical and Research Radiology Faculty at the University of Washington, to assume major responsibility for directing patient care services at Harborview Medical Center, an affiliate institution. There are complete state-of-the-art clinical facilities plus an imaging research center which includes nuclear, angiographic, MRI, and PET imaging suites. Major research in nuclear medicine includes radiolabeled antibodies, osteoporosis, positron studies in cancer, heart and lung and extensive work in radiochemistry and computer sciences. There are six full-time students in nuclear medicine plus research fellows and active medical student teaching. Will consider Assistant or Associate Professor level. Salaries are highly competitive. Please contact: Charles H. Chesnut III, MD, Professor, Radiology and Medicine, Director, Osteoporosis Research Center, Division of Nuclear Medicine, The University of Washington, Seattle, WA 98195. The University of Washington is an Equal Opportunity Employer.

NUCLEAR MEDICINE/ULTRASOUND. Hospital based group in Pacific Northwest with private practice limited to ultrasound and nuclear medicine seeks associate with training in these specialties. Nuclear medicine caseload includes cardiac, bone, hepatobiliary, pulmonary, renal, and SPECT studies. Ultrasound encompasses routine and complicated obstetrics, vascular, abdominal, pelvic, and pediatric neurosonography. Send CV to: Michael Daly, MD, Nuclear Medicine/Ultrasound Section, Emanuel Hospital, 2801 North Gantenbein Ave., Portland, OR 97227. EOE.

Physicist

HEALTH PHYSICIST to perform radiation protection consulting in medical environment. Excellent oral and written communication skills required. Position requires BS degree in science-related field and minimum of 3 years experience in radiation safety. Some travel required. Contact: Barbara, (301) 670-1818. EOE.

Residency

NUCLEAR MEDICINE RESIDENCY. Unexpected opening for July 1, 1988 in the Division of Nuclear Medicine, Dept. of Radiology. The New York Hospital-Cornell Medical Center, New York, NY. The Division has a completely new, 25,000-square-ft. facility with state-of-the-art equipment. It is staffed by four full-time physicians, two basic scientists, and a computer programmer. The residency will include all aspects of nuclear medicine

including thyroidology, as well as clinical research. Please call: Dr. Salil Sarkar or Dr. David Becker collect at (212)472-4758.

Radiologists

The Department of Radiology at Tripler Army Medical Center, Honolulu, Hawaii, is recruiting academically oriented RADIOLOGISTS for six divisions of the department: (1) CT, US, MRI (2) Nuclear medicine (3) Pediatric radiology (4) Mammography (5) Cardiovascular radiology and (6) General diagnostic radiology. Our department offers a fully accredited residency program with 18 residents and 15 attending full-time staff. Numerous consultants from across the country lecture on a continuing and regular basis. The hospital is a modern tertiary care center serving the state and the entire pacific basin. A strong residency program, a diverse and interesting patient population, excellent equipment, and a tropical lifestyle are positive aspects of the practice. Candidates should be particularly interested in patient care, teaching, and research. Salary and benefits are competitive and generous. Please contact: Dr. Mark F. Hansen, Col., MC, Chief, Department of Radiology, TAMC, HI 96859-5000; (808)433-6393. Tripler is an EO/EEO Employer.

Technologist

Mercy Hospital, Council Bluffs, Iowa has the following full-time day positions available: NUCLEAR MEDICINE TECH, ULTRASONOGRAPHER, and RADIOLOGY TECHNOLOGIST. Please send resume or contact: Babetta Lucke, Director, Radiology Department, Mercy Hospital, Box IC, Council Bluffs, IA 51502; (712)328-5200. EOE.

Geisinger Medical Center, a 569-bed tertiary care center in Danville, Pennsylvania, currently has an opening for a NUCLEAR MEDICINE TECHNOLOGIST on our staff. The position involves applying radioactive materials to assist in the diagnosis of illness/injuries. Duties include preparing assays of isotopes and calibrating isotope doses; explaining procedures and administering radiopharmaceuticals to patients; positioning patients for procedures and calibrating equipment. Applicants must be a graduate of a nuclear medicine technology program and registered as an X-Ray Technologist and registered or registry eligible for nuclear medicine. Benefits include your choice of two health care plans; paid life insurance; a 401-K plan with matching contributions and 19 days paid vacation. Applicants should submit a resume and cover letter to: Ms. Gwendolyn Marshall, Human Resources (15-29), Geisinger Medical Center, North Academy Avenue, Danville, PA 17822. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. The Cardiology Center, one of the largest outpatient facilities in Louisiana, is seeking a motivated individual to handle all responsibilities of a nuclear department. Candidate must be certified by the Nuclear Medical Technology Board, registered or registry eligible, with an interest in nuclear cardiology. Send resume to: Jean Bernard, Cardiology Center, 4500 Wichers Dr., Marrero, LA 70072. EOE.

NUCLEAR MEDICINE TECHNOLOGIST Nationwide: Considering a change? Let our 10 years of placement experience help you locate the best opportunity. Supervisory and staff positions available for Nuclear Medicine Technologists throughout the U.S. Attractive salaries, interview, and relocation assistance included. Fee paid by employer. Call or send resume to: Department CRD, Starned Staffing Corporation, 3421 W. Cypress St., Tampa, FL 33607; (800)782-7633. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. A challenging and rewarding career opportunity awaits you in the heart of the beautiful Montana Rocky Mountains. St. James Community Hospital is a 270-bed, JCAH accredited acute care hospital located halfway between Glacier and Yellowstone National Parks. Immediate access to hunting, fishing, skiing, hiking, and other outdoor recreation is available for the sports enthusiast. Qualified candidates for the position must be ARRT (N) registered and also be registered or certified (CNMT) in nuclear medicine.

Classified Advertising

Excellent salary and benefits accompany this position. Qualified applicants send resume to: Patrick Dudley, Employment Supervisor, St. James Community Hospital, 400 S. Clark St., Butte, MT 59701. EOE.

RESEARCH TECHNOLOGIST. Full-time position open for highly motivated organized nuclear medicine technologist interested in cardiac research. Duties include computer processing of cardiac studies, organizing data, maintaining data library, corresponding with other centers, and coordinating research studies. Flexible hours possible and opportunity for advancement to supervisory position. Contact: Frans J. Wackers, MD, Director Nuclear Cardiology, Yale University, TE-2, 333 Cedar St., New Haven CT 06510. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. HCA Doctors Hospital of Sarasota, a 168-bed acute care facility located on the sunny gulf coast of Florida, is seeking an experienced Nuclear Medicine Technologist to work full-time on the day shift. Competitive wage and excellent fringe benefit package, including 401(K) plan, stock purchase plan, child care reimbursement, and more. Submit resume to: Personnel Office, HCA Doctors Hospital of Sarasota, 2750 Bahia Vista St., Sarasota, FL 34239. An Equal Opportunity Employer.

NUCLEAR MEDICINE TECHNOLOGIST. Immediate position available for registered Nuclear Medicine Technologist, at the AMI/Coastal Bend Hospital, a 75-bed, JCAH accredited, acute care hospital located on the Coast, 30 miles North of Corpus Christi, TX. Excellent salary and benefits package available. Please contact: Personnel Office, AMI/Coastal Bend Hospital, 1711 W. Wheeler, Aransas Pass, TX 78336; (512)758-8585, ext. 430. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. We are a 126-bed, acute care facility located in Central

Florida. We offer an outstanding community in which to live, nestled amidst orange groves and beautiful lakes. We have an immediate opportunity available for a Nuclear Medicine Technologist. The desirable candidate must be Florida licensed or eligible. Experience with G.E. StarCam is a plus. In addition to our ideal location we offer salaries based on experience and an excellent benefit package. For immediate consideration call or send your resume to: Employee Relations, Highlands Regional Medical Center, P.O. Drawer 2066, Sebring, FL 33870; (813)385-6101. An Equal Opportunity Employer M/F/V/H.

NUCLEAR MEDICINE TECHNOLOGIST. Position available for a registered or registry eligible technologist in a busy 350-bed community hospital in scenic eastern Tennessee. Chattanooga is about 90 minutes from Atlanta, Birmingham, Knoxville, and Nashville, and has a population of approximately 450,000 people who enjoy excellent weather, and low taxes and cost-of-living. The nuclear medicine department has three GE 400T cameras, a mobile Technicare camera and two MDS A³ computers. A full-time Harvard trained nuclear physician is the medical director of the department. Heavy cardiac load, including SPECT. Send resume to: Personnel Office, Memorial Hospital, 2500 Citico Ave., Chattanooga, TN 37404, or call (615)629-8576. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. Raleigh, North Carolina, one of the fastest growing regions in the nation; 650-bed acute care facility. Progressive nuclear department consisting of two gamma cameras, one with SPECT capabilities and two MDS A³ computers used in acquiring and analyzing routine procedures and extensive nuclear cardiology procedures. Full-time day position with competitive salary and benefit package for registered Technologist or registry eligible. Contact or send resume to: Nancy Nelson, Recruiter, Wake Medical Center, 3000 New Bern Ave., Raleigh, NC 27610; (919)755-8140. An Equal Opportunity Employer.

NUCLEAR MEDICINE TECHNOLOGIST. You won't believe this opportunity! A salary range of \$23,213-\$30,222 in one of the lowest cost-of-living areas of the country. St. John's Regional Health Center, an 886-bed tertiary referral center, is seeking a degreed, experienced Technologist. We are located in Springfield, MO, an area with excellent schools, low crime, excellent housing costs, extremely short driving times, and one of the most beautiful areas of the country. Send resume to: Jerri Flikkema, c/o Personnel Dept., St. John's Regional Health Center, 1235 E. Cherokee, Springfield, MO 65804; Call collect (417)885-2946. Equal Opportunity Employer.

NUCLEAR MEDICINE TECHNOLOGIST. A 334-bed JCAH hospital located in South Florida has immediate opening for a full-time staff Nuclear Medicine Technologist. Qualified applicants must be ARRT (NM) and registered or registry eligible for State of Florida. Competitive salary range and excellent benefit package. Submit resume to: Director of Personnel, Good Samaritan Hospital, P.O. Box 3166, West Palm Beach, FL 33402; (305)650-6206. EOE.

CERTIFIED NUCLEAR MEDICINE TECHNOLOGIST. Excellent full-time opportunity for this opening. BS preferred. Perform cardiac, SPECT, and routine imaging with rotation through RIA. Excellent salary and benefits available. For confidential consideration, send your resume to: Michael Moore, Employment and Benefits Manager, The Williamsport Hospital & Medical Center, 777 Rural Ave., Williamsport, PA 17701. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. Registered or eligible technologist for the university affiliated teaching hospital in Boston, MA. Competitive salary & benefits. Write or call: Nuclear Med. Svc., 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.

WRITTEN 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

An Equal Opportunity Employer

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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ANNOUNCEMENT

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International Union of Physical and
Engineering Sciences in Medicine

American Association of Physicists in Medicine

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

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(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, Biomagnetism, Magnetic Resonance Imaging, SPECT and PET, PAC, CT, and Nuclear Magnetic Spectroscopy.

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Alfred R. Smith, Ph.D.
Dept. of Radiation Therapy

David T. Kopp, Ph.D.
Dept. of Radiology



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DEPARTMENT OF NUCLEAR MEDICINE

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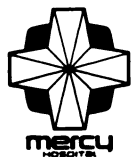
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970 Plumas Street
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Methodist

The Methodist Hospital
Houston, Texas

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 Noninvasive Services is one of the largest and most sophisticated in the nation; this includes the area of **Nuclear Cardiology**, which performs 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, MT1415, 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 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
Sr. Employment Representative



NORWALK HOSPITAL
Maple Street
Norwalk, CT 06856

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THE EASTERN HEALTH SERVICE Sydney, Australia

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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)232-9557.**

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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Can Be
An Asset.**

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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 infirmary, 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**

m/f/h/v

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, gastroenterology, 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
P.O. 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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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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Circle Reader Service No. 89

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.

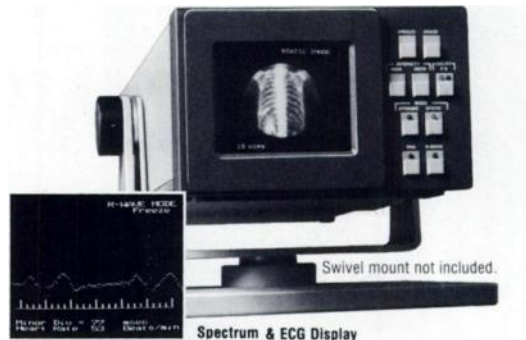
While indispensable to professionals in nuclear medicine and related technology programs, the information contained herein will also be useful to those involved in personnel evaluation.

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

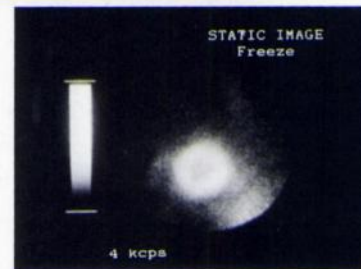
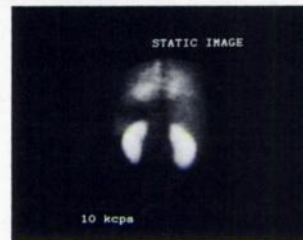
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For the technologist's convenience, a simple control allows you to administer the procedure and observe the gamma camera at the same time.

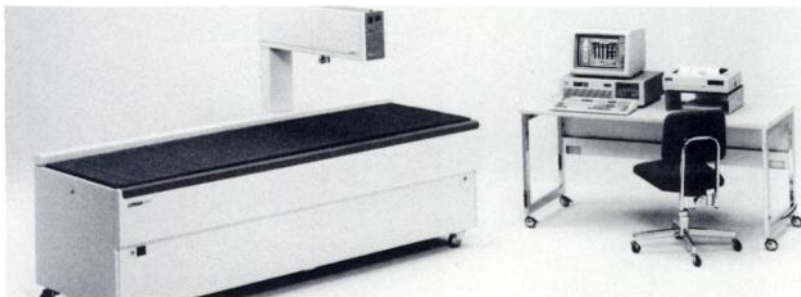
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New Products

Total Body Densitometer

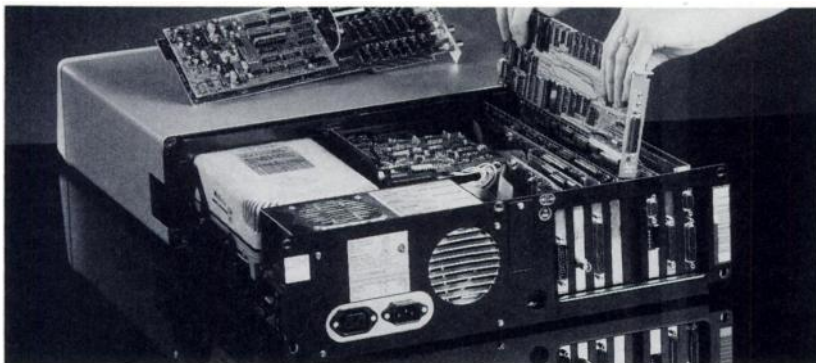


Lunar Radiation Corp. introduces its DP4 Total Body Densitometer for clinical use. The new DP4 features an IBM Personal Computer/AT, color display and decreased scan time. Scan time is reduced through intelligent scanning which follows body contours, thus shortening scan lines, according to the company. 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.**

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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

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.**

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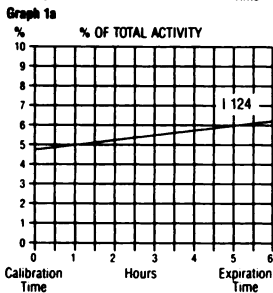
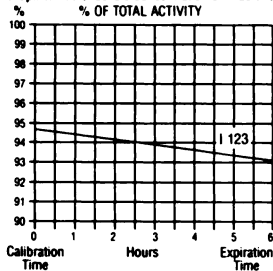
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DIAGNOSTIC—FOR INTRAVENOUS USE

DESCRIPTION: SPECTAMINE® Iofetamine HCl I 123 Injection, is supplied as a sterile, apyrogenic, aqueous, isotonic sodium chloride solution for intravenous administration. Each milliliter of the solution contains 37 megabecquerels (1 millicurie) of iofetamine HCl I 123 at calibration time, 0.15 milligram iofetamine HCl, 0.017 millimole sodium phosphate, and 8.0 milligrams sodium chloride for isotonicity. The pH is adjusted to 4.5-6.0 with sodium hydroxide or hydrochloric acid. SPECTAMINE contains no bacteriostatic preservative. The radio-nuclidic composition at calibration time is not less than 94.7 percent I 123, not more than 4.8 percent I 124, and not more than 0.5 percent all others (I 125, I 126, I 130 and Te 121). The radio-nuclidic composition at the 6-hour expiration time is not less than 93.1 percent I 123, not more than 6.2 percent I 124, and not more than 0.7 percent all others.

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

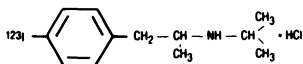
Graph 1. Radio-nuclidic Concentration of I 123 and I 124



The chemical names are ¹²³I-d,l-N-isopropyl-p-iodoamphetamine hydrochloride; (+)-4-(¹²³I)-α-methyl-N-(1-methylethyl)benzeneethanamine hydrochloride, and (+)-p-iodo-¹²³I-N-isopropyl-α-methylphenethylamine hydrochloride

Molecular formula: C₁₂H₁₉N¹²³I
Molecular weight: 335.74

Structural formula:



PHYSICAL CHARACTERISTICS: Iodine I 123 decays by electron capture with a physical half-life of 13.2 hours¹. The photon that is useful for detection and imaging studies is given in Table 1. The user should be aware that I 124, which is present as a long-lived contaminant in I 123, has a high energy gamma ray (602.7 keV) with an absolute intensity of 59%; thus, a higher energy collimator may be advantageous.

Table 1. Principal Radiation Emission Data¹

| Radiation | Mean %/Disintegration | Mean Energy (keV) |
|-----------|-----------------------|-------------------|
| Gamma-2 | 83.4 | 159 |

¹ Koehler, David C. "Radioactive Decay Data Tables." DOE/TIC-10226. 122 (1981)

EXTERNAL RADIATION: The specific gamma ray constant for I 123 is 1.60 R/hr-mCi at 1 cm. The first half-value thickness of lead (Pb) for I 123 is 0.005 cm. A range of coefficients of attenuation of the radiation emitted by this radionuclide can be achieved by the interposition of various thicknesses of Pb and is shown in Table 2. For example, the use of 1.63 cm of Pb will decrease the external radiation exposure by a factor of about 1,000.

Table 2. Radiation Attenuation by Lead (Pb) Shielding²

| Shield Thickness (Pb) cm | Coefficient of Attenuation |
|--------------------------|----------------------------|
| 0.005 | 0.5 |
| 0.10 | 10-1 |
| 0.88 | 10-2 |
| 1.63 | 10-3 |
| 2.48 | 10-4 |

² Method of calculation. Data supplied by Oak Ridge Associated Universities, Radiopharmaceutical Internal Dose Information Center, 1984

CLINICAL PHARMACOLOGY: Iofetamine HCl I 123 is lipid soluble. In humans, the percentages remaining in the brain, liver and lungs, respectively, at 1, 5 and 22 hours, were: 5.7, 4.1, 2.1; 12.5, 14.1, 5.5; and 16.8, 10.6, 6.1. None of these studies demonstrated any constant plateaus in concentration within any organ. Animal studies have shown that iofetamine HCl I 123 is removed from the circulation via first pass metabolism primarily by the brain and liver; the extraction fraction in the brain is 74-92%. This metabolism may be partially dependent on pH. The ratio of concentration in gray to white matter in primate studies varied considerably with time, being 2.4 at 15 minutes, 2.2 at 1 hour, 1.8 at 4 hours and 0.6 at 24 hours. Animal data suggest that retention in the brain is

Table 3. Physical Decay Chart
Iodine I 123, Half-life 13.2 hours

| Hours | Fraction Remaining |
|-------|--------------------|
| 0* | 1.000 |
| 1 | 0.949 |
| 2 | 0.900 |
| 3 | 0.854 |
| 4 | 0.811 |
| 5 | 0.769 |
| 6 | 0.730 |

* Calibration Time

582 ± 146 liters (mean ± 1 S.D.) and less than 10% is volume of plasma proteins.

Elimination of the drug from the plasma is biexponential with a fast biological half-life of 1.6 ± 1.2 hours and a slow biological half-life of 10.9 ± 6.1 hours. The total plasma clearance and urinary clearance are 1550 ± 500 and 21 ± 12 ml per minute, respectively. The principal route of excretion is renal. About 20% of the dose is excreted after one day, 40% after two days and 48% after three days. Most of the radioactivity in plasma beyond 24 hours following the dose is due to metabolites of the parent drug which have comparatively slower clearance. Therefore, plasma radioactivity may appear approximately similar from one hour to 96 hours post dosing.

The two major metabolites are p-iodoamphetamine and p-iodobenzonic acid. Plasma p-iodoamphetamine levels initially increase up to 8 to 10 hours post-dosing and then decrease with a terminal half-life of approximately 48 hours. p-iodoamphetamine is further metabolized to p-iodobenzonic acid. Continuous accumulation of p-iodobenzonic acid in plasma is noticed up to 44 hours post dose; it is excreted in the urine as p-iodophenylacetic acid after conjugation with glycine.

INDICATIONS AND USAGE: SPECTAMINE (Iofetamine HCl I 123 Injection) is recommended for use as a lipid-soluble brain-imaging agent. It has been shown to be useful in the evaluation of nonlacunar stroke especially when used within 96 hours of onset of focal neurological deficit. The rates of agreement between abnormal images and the neurological examination suggestive of ischemic cerebrovascular insufficiency, appear to increase with the severity of symptoms. Its usefulness for the measurement of cerebral blood flow has not been established.

CONTRAINDICATIONS: None known.

WARNINGS: SPECTAMINE (Iofetamine HCl I 123 Injection) should not be administered to individuals with known hypersensitivity to sympathomimetic amines or to those individuals taking monoamine oxidase inhibitors.

PRECAUTIONS: General: Some primate (Macaca fascicularis) studies have shown marked eye uptake of iofetamine HCl I 123. Localization has not been studied in the isolated human eye although in vivo images suggest the concentration of iofetamine HCl I 123 is below the limit of detection. Individual human variations in pharmacokinetics of this drug and the long-term effect on the eye have not been elucidated.

The contents of the vial are radioactive. Adequate shielding of the preparation must be maintained at all times.

Do not use after the expiration time and date (6 hours after calibration time) stated on the label.

Potassium Iodide Oral Solution should be administered before the examination to minimize thyroid uptake of iodine I 123.

The prescribed iofetamine HCl I 123 dose should be administered as soon as practical from the time of receipt of the product (i.e., as close to calibration time as before, if possible), in order to minimize the fraction of radiation exposure due to relative increase of radio-nuclidic contaminants with time.

To minimize radiation dose to the bladder, the patient should be encouraged to drink fluids and void frequently.

SPECTAMINE, as well as other radioactive drugs, must be handled with care. Appropriate safety measures should be used to minimize radiation exposure to clinical personnel. Care should also be taken to minimize radiation exposure to the patient consistent with proper patient management.

Radiopharmaceuticals should be used only by physicians who are qualified by training and experience in the safe use and handling of radionuclides, and whose experience and training have been approved by the appropriate government agency authorized to license the use of radionuclides.

Drug Interactions: There has been a single report of elevated diastolic hypertension (about 30 mm Hg) occurring 18 hours after administration of SPECTAMINE in a patient maintained on therapeutic doses of valproic acid.

Concurrent use of monoamine oxidase (MAO) inhibitors and compounds containing the amphetamine structure has been known to result in hypertensive crisis. Caution, therefore, should be exercised when administering SPECTAMINE (Iofetamine HCl I 123 Injection) to individuals taking medications known to potentiate the effects of sympathomimetic amines. It is recommended that SPECTAMINE not be administered during or within 14 days following administration of MAO inhibitors.

Sympathomimetic amines may affect the biodistribution of SPECTAMINE and, thus, may influence the image quality and diagnostic utility of the image.

Contraindications, Hypersensitivity, Impairment of Fertility: No long-term animal studies have been performed to evaluate carcinogenic potential, mutagenic potential or effects on fertility in male or female animals. The Ames test was negative for mutagenic effects.

Pregnancy Category C: Animal reproduction studies have not been conducted with SPECTAMINE. It is also not known whether SPECTAMINE can cause fetal harm when administered to a man or a pregnant woman or can affect reproduction capacity. SPECTAMINE should be given to a pregnant woman only if clearly needed.

Ideally, examinations using radiopharmaceuticals, especially those elective in nature, in women of childbearing capability, should be performed during the first few (approximately ten) days following the onset of menses.

Nursing Mothers: Since iodine I 123 is excreted in human milk, formula

feeding should be substituted for breast feeding if the agent must be administered to the mother during lactation.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: In a clinical study in 93 patients with sudden onset of focal neurological deficit, e.g., cerebral infarction, 7 patients died within 2 to 55 days after administration. The deaths were considered to be a result of the disease state. Although there was no concurrent control group, statistics from historical controls support this evaluation.

There is evidence suggesting that the administration of 1 to 2 milligrams of iofetamine HCl, the carrier in SPECTAMINE, may 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 also was reported several hours after the use of SPECTAMINE in a patient with a coincidental upper respiratory infection.

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

DOSE AND ADMINISTRATION: The recommended intravenous dose for SPECTAMINE (Iofetamine HCl I 123 Injection) in the average adult patient (70 kg) is 111 to 222 megabecquerels (3 to 6 millicuries).

It is desirable to decrease thyroid accumulation of radioactive iodine by administering three drops of Potassium Iodide Oral Solution 1/2-1 hour before injection of SPECTAMINE.

Use contents of the vial up to six (6) hours after calibration time and date. Thereafter, discard the vial with its contents in accord with standard safety procedures.

SPECTAMINE is supplied as a sterile, apyrogenic, aqueous, isotonic sodium chloride solution in vials. Aseptic procedures and a shielded syringe should be employed when withdrawing doses for administration. The user should wear waterproof gloves during the administration procedure.

The patient dose should be measured by a suitable radioactivity calibration system immediately before administration.

SPECTAMINE should be administered by direct venipuncture. Imaging is optimal at about 10 minutes to 5 hours after injection of the drug.

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration whenever solution and container permit.

RADIATION DOSIMETRY: The estimated absorbed radiation dose to an average adult patient (70 kg) from an intravenous administration of a maximum recommended dose of 222 megabecquerels (6 millicuries) of SPECTAMINE at time of calibration and time of expiration are shown in Table 4. Radiation dose estimates include contributions from I 124, I 125, I 126, and I 130 impurities. Estimates are based on complete thyroid blockage.

Table 4. Estimated Absorbed Radiation Dose¹

| Target Organ | At Calibration Time | | At Expiration Time (6 hours after calibration) | |
|--------------|---------------------|-------------------|--|-------------------|
| | mGy/222 MBq | rad/6 mCi | mGy/222 MBq | rad/6 mCi |
| Brain | 5.8 | 0.58 | 6.6 | 0.66 |
| Retina | 4.4 | 4.4 | 4.7 | 4.7 |
| Lens | 7.6 | 0.76 | 9.0 | 0.90 |
| Lung | 1.4 | 1.4 | 1.6 | 1.6 |
| Liver | 1.3 | 1.3 | 1.4 | 1.4 |
| Kidneys | 4.2 | 0.42 | 4.7 | 0.47 |
| Bladder | 2.2 | 2.2 | 2.5 | 2.5 |
| Thyroid | 2.0 ² | 0.20 ² | 2.3 ² | 0.23 ² |
| Testes | 3.8 | 0.38 | 4.4 | 0.44 |
| Ovaries | 4.7 | 0.47 | 5.3 | 0.53 |
| Red Marrow | 5.2 | 0.52 | 5.8 | 0.58 |
| Total Body | 4.6 | 0.46 | 5.2 | 0.52 |

¹ Data supplied by Oak Ridge Associated Universities, Radiopharmaceutical Internal Dose Information Center, 1987. Rocky Mountain Medical Physics, Inc., Lakewood, Colorado, 1985.

² If thyroid uptake of iodine I 123 is not blocked with potassium iodide and thyroid uptake is 25%, the estimated absorbed radiation dose to the thyroid is 370 mGy (37 rads) if 222 MBq (6 mCi) of the drug is administered at calibration time and 470 mGy (47 rads) if it is administered at expiration time.

HOW SUPPLIED: SPECTAMINE is supplied in nominal 3.5 ml vials as a sterile, apyrogenic, aqueous, isotonic sodium chloride solution for intravenous injection. Each milliliter contains 37 megabecquerels (1 mCi) of iofetamine HCl I 123 at calibration time.

It is available in individual vials containing 111 megabecquerels (3 mCi) of iofetamine HCl I 123 at calibration time in a volume of 3 ml.

Vials are packaged in individual lead shields with plastic outer container.

Special Handling and Precautions: The contents of the vial are radioactive and adequate shielding and handling precautions must be maintained. The user should wear waterproof gloves and use shielding at all times when handling the vial.

National Drug Code number is: 17156-211-09

Storage: Store vial in its lead shield at a temperature of 5-30°C. Do not freeze.

Disposal: Users should monitor the amount of radioactivity present prior to disposal of this product. Storage and disposal of SPECTAMINE should be in accordance with the conditions of Agreement State or Licensing State licenses and regulations, or other regulatory agency authorized to license the use of radionuclides.

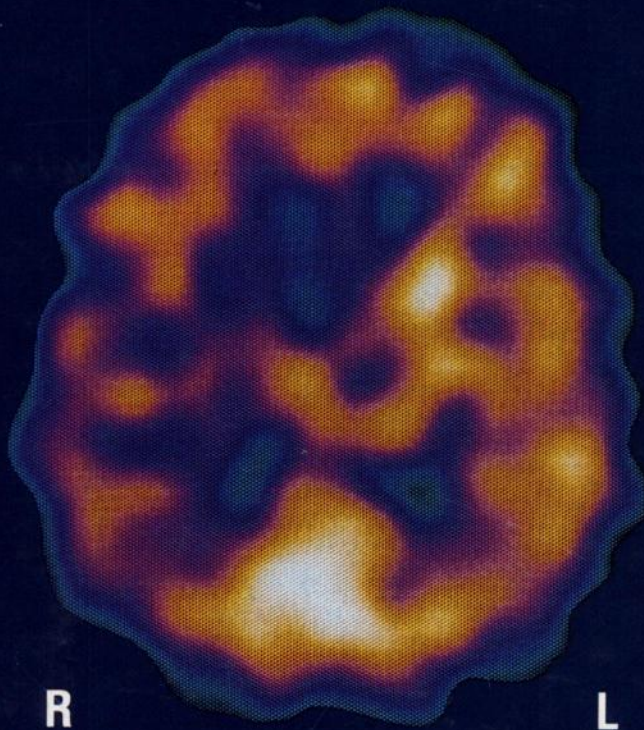
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**The dawn of metabolic brain imaging
in the evaluation of stroke...
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Patient history:

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

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