

TECHNETIUM 99m GENERATORS

Technetium Tc 99m Generators
for the Production of
Sodium Pertechnetate Tc 99m



20 Sizes

Convenient—Satisfying the needs of virtually any Nuclear Medicine Department

- 20 Sizes—from 830mCi to 16,600mCi.
- 3 Calibration Days—Monday, Tuesday and Thursday.
- Open/Closed Valve—to eliminate possibility of leakage during shipment and use.
- Secondary Shield—can be loaded from top or from side.

Easy-to-Use

- Horizontal elution
- Internal saline reservoir—lets you automatically elute, eliminating the need to store saline vials.
- 5, 10 and 20cc vials allow you maximum flexibility in elution concentration to meet your needs.

Maximum Radiation Protection

The smallest 5 sizes of the Technetium Tc 99m Generator—830, 1660, 2480, 3310 and 4140mCi—are shielded with lead. The remaining fifteen sizes are shielded with depleted uranium internal shielding. Depleted uranium possesses greater density and therefore offers superior shielding properties for our higher activity Generators. Optimum shielding design minimizes radiation to personnel in work areas, providing maximum protection.



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TECHNETIUM Tc 99m GENERATOR for the Production of Sodium Pertechnetate Tc 99m

DESCRIPTION: The Technetium Tc 99m Generator is prepared with fission produced Molybdenum Mo 99 absorbed on alumina in a lead-shielded column and provides a means for obtaining sterile pyrogen-free solutions of Sodium Pertechnetate Tc 99m in sodium chloride injection. The eluate should be crystal clear. With a pH of 4.5-7.5, hydrochloric acid and/or sodium hydroxide may have been used for pH adjustment. Over the life of the generator, an elution will contain a yield of 80% to 100% of the theoretical amount of Technetium Tc 99m available from the Molybdenum Mo 99 on the generator column.

Each eluate of the generator should not contain more than 0.15 microcurie of the Molybdenum Mo 99 per millicurie Technetium Tc 99m per administered dose at the time of administration, and not more than 10 micrograms of aluminum per milliliter of the generator eluate, both of which must be determined by the user before administration.

Since the eluate does not contain an antimicrobial agent, it should not be used after twelve hours from the time of generator elution.

INDICATIONS AND USAGE: Sodium Pertechnetate Tc 99m is used IN ADULTS as an agent for: brain imaging including cerebral radionuclide angiography; thyroid imaging; salivary gland imaging; placenta localization; blood pool imaging including radionuclide angiography; and urinary bladder imaging (direct isotopic cystography) for detection of vesico-ureteral reflux.

Sodium Pertechnetate Tc 99m is used IN CHILDREN as an agent for: brain imaging including cerebral radionuclide angiography; thyroid imaging; blood pool imaging including radionuclide angiography; and urinary bladder imaging (direct isotopic cystography) for the detection of vesico-ureteral reflux.

CONTRAINDICATIONS: None known.

WARNINGS: Radiation risks associated with the use of Sodium Pertechnetate Tc 99m are greater in children than in adults. In general, the younger the child the greater the risk owing to greater absorbed radiation doses and longer life expectancy. These greater risks should be taken firmly into account in all benefit-risk assessments involving children.

PRECAUTIONS: As in the use of any radioactive material, care should be taken to minimize radiation exposure to the patient consistent with proper patient management and to insure minimum radiation exposure to occupational workers.

Since the eluate does not contain an antimicrobial agent, it should not be used after twelve hours from the time of generator elution.

Carcinogenesis, Mutagenesis, Impairment of Fertility

No long-term animal studies have been performed to evaluate carcinogenic potential or whether Technetium Tc 99m may affect fertility in males or females.

Pregnancy Category C

Animal reproductive studies have not been conducted with Technetium Tc 99m. It is also not known whether Technetium Tc 99m can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. Technetium Tc 99m should be given to a pregnant woman only if the expected benefits to be gained clearly outweigh the potential hazards.

Ideally, examinations using radiopharmaceuticals, especially those effective in nature, of a woman of childbearing capability should be performed during the first few (approximately 10) days following the onset of menses.

Nursing Mothers

Technetium Tc 99m is excreted in human milk during lactation, and therefore formula feedings should be substituted for breast feedings.

Pediatric Use

See **INDICATIONS AND USAGE, DOSAGE AND ADMINISTRATION.** See also description of additional risk under **WARNINGS.**

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.

The generator should not be used after 16 days from the date and time of calibration.

At time of administration, the solution should be crystal clear.

ADVERSE REACTIONS: Allergic reactions including anaphylaxis have been reported infrequently following the administration of Sodium Pertechnetate Tc 99m.

HOW SUPPLIED: Sodium Pertechnetate Tc 99m is supplied as a Molybdenum Mo 99/Technetium Tc 99m generator in sizes from 830 millicuries up to 16,600 millicuries (in approximately 830 millicurie increments) of Molybdenum Mo 99 as of 10:00 P.M. Eastern Time of the day of calibration. The **TECHNETIUM Tc 99m GENERATOR** consists of:

- 1) sterile generator, 2) Sodium Chloride injection source, 3) 10 cc sterile evacuated vials, 4) sterile needles, 5) elution vial shield* 6) finished drug labels. Elution vials in 5 cc and 20 cc sizes are available upon request.

*Initial order only.

The **TECHNETIUM Tc 99m GENERATOR** should not be used after sixteen (16) days from the date and time of calibration.

For multidose use, the eluate should be used within 12 hours of the generator elution time. If the eluate is used to reconstitute a kit, the radiolabeled kit should not be used after 12 hours from the time of generator elution or 6 hours after reconstitution of the kit, whichever is earlier.

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APRIL 1985

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Circle Reader Service No. 1

MORE FOR LESS!



RADIOISOTOPE RECORD

Date: Jul 16, 1984
 Time: 8:11 A.M.
 Isotope: Tc-99m
 Sample # 1
 Activity: 798. mCi
 Volume: 20.0 ml
 Conc: 39.9 mCi/ml
 99Mo: 27.8 uCi
 Mo/Tc: .034 uCi/mCi

RADIOISOTOPE RECORD

Date: Jul 16, 1984
 Time: 8:12 A.M.
 Isotope: Tc-99m
 Sample # 1
 Dose: 5.00 mCi

Isotope Decay Chart

8:30 A.M.
 38.5 mCi/ml
 .13 ml
 Mo: .036 uCi/mCi

9:00 A.M.
 36.3 mCi/ml
 .14 ml
 Mo: .038 uCi/mCi

9:30 A.M.
 34.3 mCi/ml
 .15 ml
 Mo: .040 uCi/mCi

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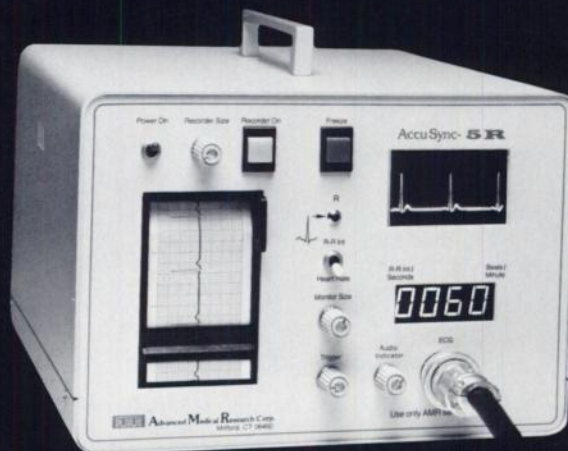
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- Audio Indicator.



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MODEL

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AccuSync-IR



AccuSync-2R
AccuSync-2M



AccuSync-3



AccuSync-4



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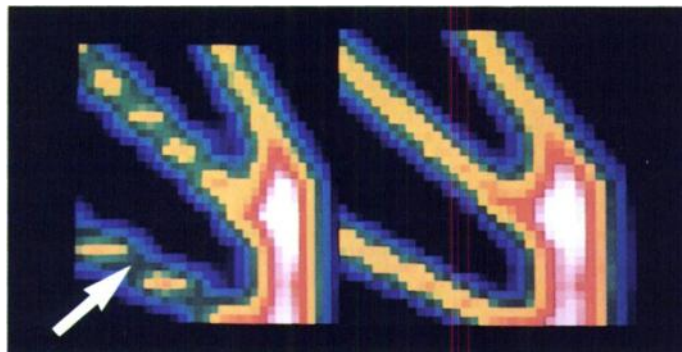
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3-D PET IMAGING

Posicam Systems offer 3-D Imaging and High Resolution

CONVENTIONAL
DESIGN

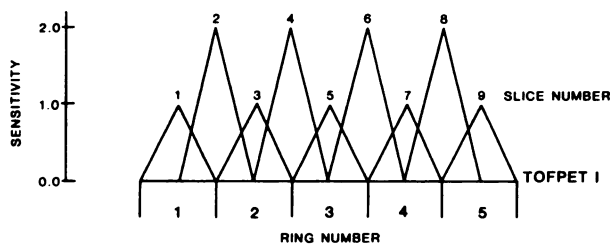
Inadequate axial sampling, inherent in many PET cameras is shown by the data gaps in this finger phantom.*



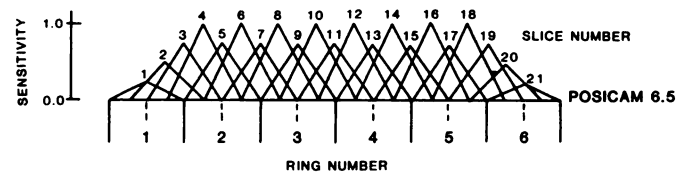
POSICAM
DESIGN

NO DATA GAPS BETWEEN SLICES.
Emulation of POSICAM shows improved axial sampling, providing true 3-dimensional sampling and imaging.*

*Images obtained with the University of Texas TOFPET I (11mm x 11mm resolution)
POSICAM Systems resolution expected to be (6mm x 12mm)

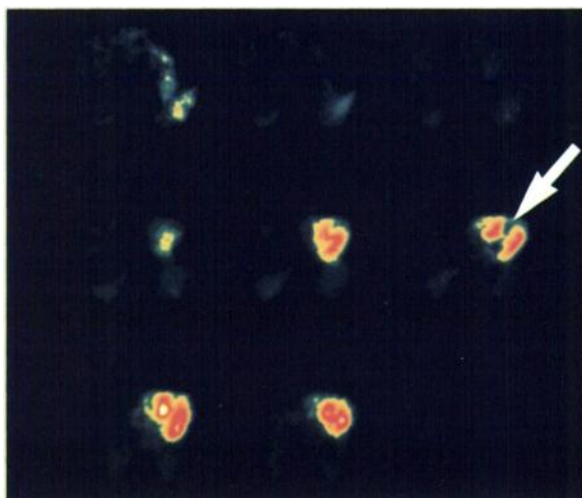


Conventional design shows data gaps and large sensitivity variations in adjacent slices.

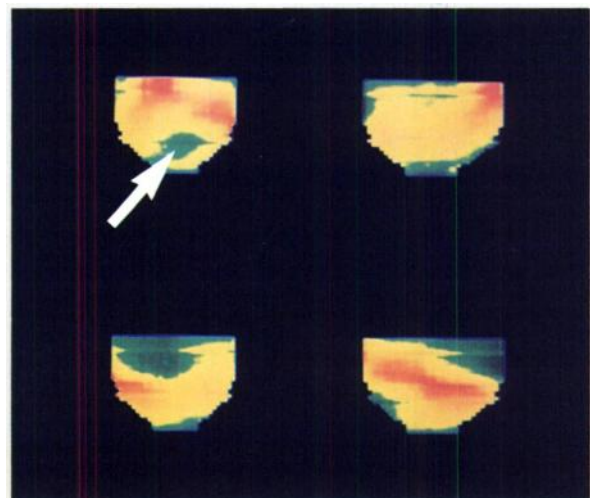


IMPROVED AXIAL UNIFORMITY
POSICAM's proprietary detector arrangement provides more slices and uniform sensitivity across the field of view.

CLINICAL EXAMPLE



Transaxial 2-D image planes of Myocardial perfusion in patient with anterior infarct.



Same data converted into 3-D surface displays of Myocardial perfusion. Green areas show infarcted zones, caused by a mid LAD lesion.

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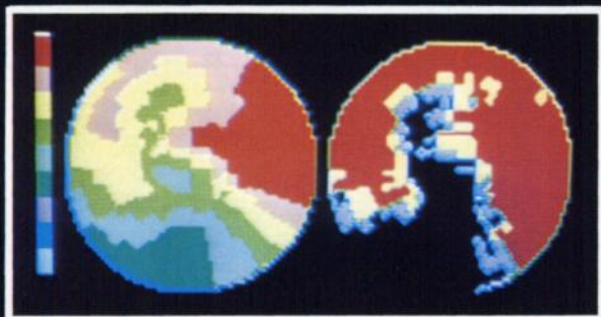
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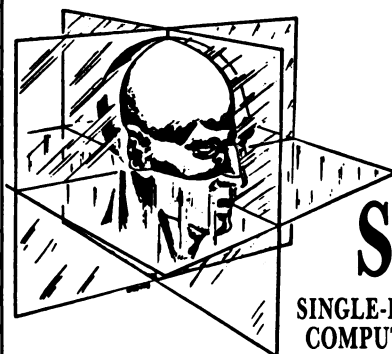
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SPECT

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COMPUTED TOMOGRAPHY:
A PRIMER**

by
Robert J. English **Susan E. Brown**
CNMT CNMT

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This guide answers the technologist's fundamental questions about SPECT, as both a text and as an extension of the manufacturer's operating manual.

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New ADAC nuclear medicine computer handles up to seven image processors—plus archiving. And it can pay for itself in less than a year.

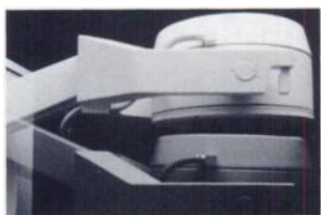
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- **NUCLEAR PHARMACY:**
An Introduction to the Clinical Application of Radiopharmaceuticals
By HENRY M. CHILTON, Pharm.D. and RICHARD L. WITCOFSKI, Ph.D., both of Bowman Gray School of Medicine of Wake Forest University, Winston-Salem, North Carolina. 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. 190 pp. (7 x 10), 111 illus., 1986, \$22.50.

- **TEXTBOOK OF NUCLEAR MEDICINE, Volume I: Basic Science, 2nd ed.**
Edited and with contributions by JOHN HARBERT, M.D., Georgetown University Medical School, Washington, D.C., and ANTONIO FERNANDO GONCALVES da ROCHA, M.D., Centro de Medicina Nuclear, Rio de Janeiro, Brazil. Updated in the areas of imaging systems, computer systems and radiopharmaceutical chemistry. Featured is an in-depth examination of computed tomography and ultrasound as complementary imaging disciplines. 526 pp. (7 x 10), 322 illus., 1984, \$80.00.

- **TEXTBOOK OF NUCLEAR MEDICINE, Volume II: Clinical Applications, 2nd ed.**
Edited and with contributions by JOHN HARBERT, M.D., Georgetown University Medical School, Washington, D.C., and ANTONIO FERNANDO GONCALVES da ROCHA, M.D., 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, gastrointestinal system, and central nervous system. 724 pp. (7 x 10), 375 illus., 1984, \$95.00.

- **RADIATION PROTECTION IN THE RADIOLOGIC AND HEALTH SCIENCES, 2nd ed.**
By MARILYN E. NOZ, Ph.D., New York University Medical School, New York, New York; and GERALD Q. MAGUIRE, JR., Ph.D., Columbia University in the City of New York. Covers a wide range of topics including specific internal/external radiation sources, risk and protection measures, absorbed dose and biological effects, neutron interaction and detection, sealed and unsealed radionuclides. 277 pp., 50 illus., paperback, 1985, \$24.50.

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LABORATORY MANUAL for Nuclear Medicine Technology

Edited by Wanda M. Hibbard, CNMT,
and Sue P. Lance, CNMT

In response to a need for standardizing the learning experiences of student technologists, the *Laboratory Manual for Nuclear Medicine Technology* has been prepared for nuclear medicine technology training programs. The exercises were written by educators with years of experience in their respective areas of expertise and were field tested by technologists in nuclear medicine schools—both instructors and students.

This manual will serve to enhance the student's knowledge of a standard curriculum and develop competency in clinical practice. It provides the most comprehensive training resource available to be used in a laboratory setting. In addition, this manual will aid residents in fulfilling the NRC requirements for licensure.

ABBREVIATED CONTENTS

- Part I: Radiation Safety**
Part II: Instrumentation
Part III: Physics
Part IV: Radiopharmacy
Part V: Radiochemistry
Part VI: Patient Care

Softcover format, 8½ x 11", 163 pp.

Publication date: July 1984

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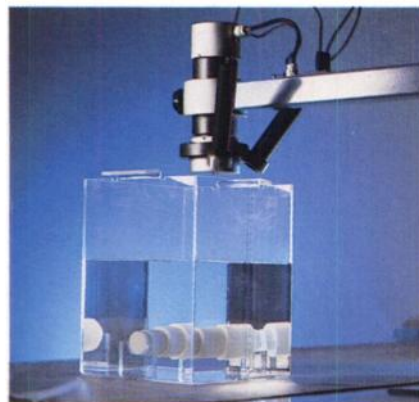
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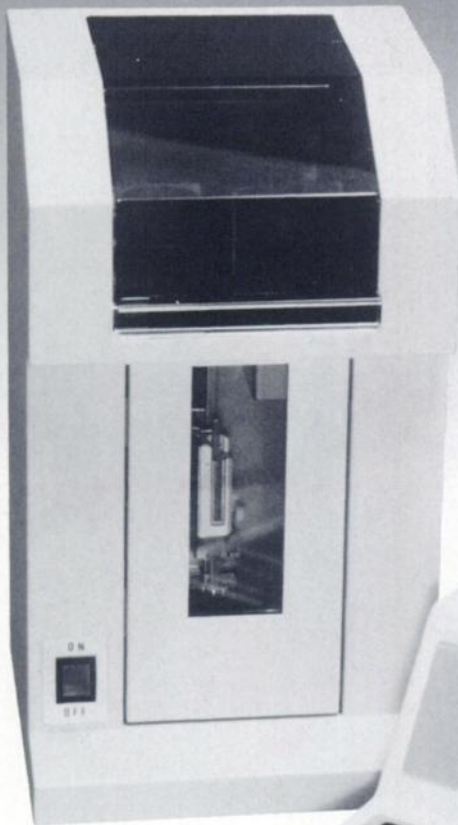
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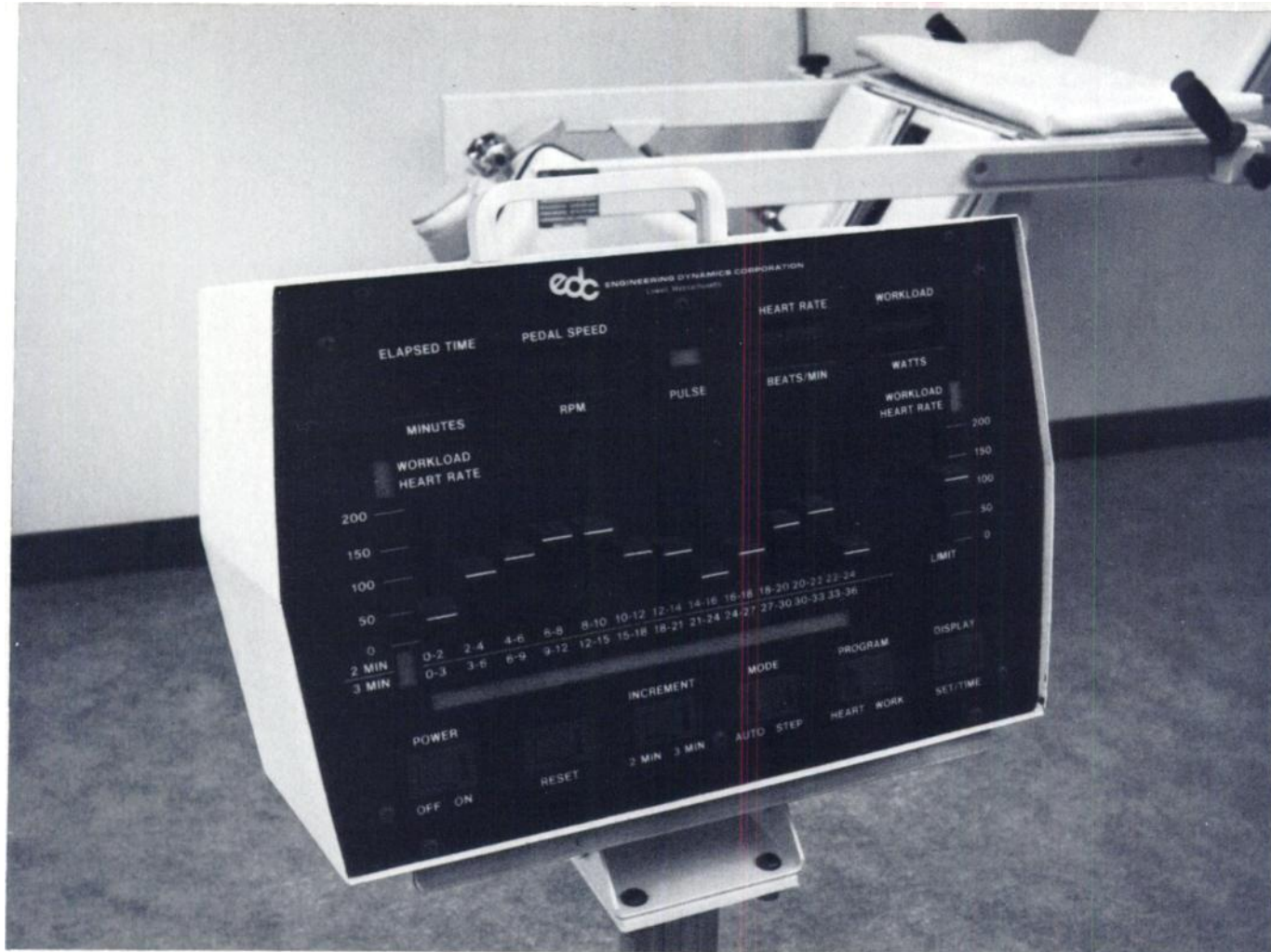
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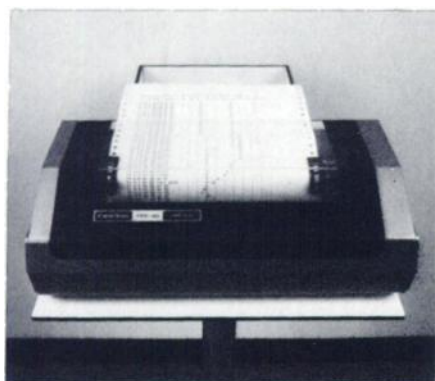
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These three new advances have been added to the already well accepted features of our classic model 8430, with its ability to be used either as a stress testing table or as a general imaging table — its fully adjustable table and ergometer — its clear, error-proof, digital readouts — its sturdy construction — and all the other excellent

features that nuclear cardiology has come to expect from EDC.

We think the EDC Model 8450 has everything you will ever want, or need, for Cardiac Stress Testing. Give us a call for further details.



Visit us at the SNM Show in
Washington, DC. Booth 111, 112

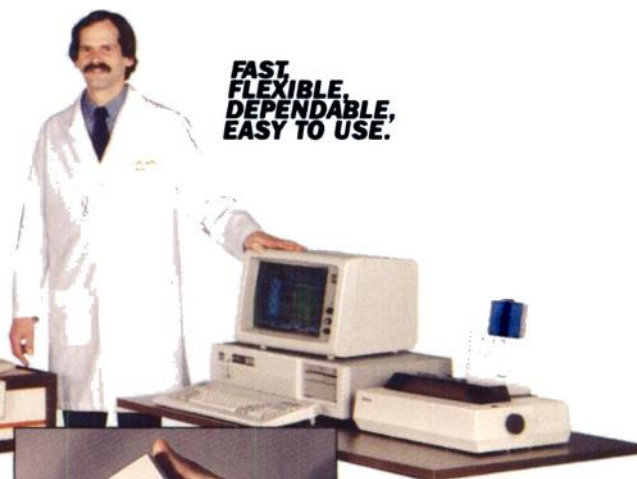


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Circle Reader Service No. 16

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NORLAND 2600:



**FAST.
FLEXIBLE.
DEPENDABLE.
EASY TO USE.**

UNIQUE WHOLE BODY SCANNING CAPABILITY.

The unique design of the 2600's scanner allows scans anywhere on the surface of the table, and at any angle. Your patient doesn't move; the scanner arm does. This makes it easy for you, and particularly your osteoporotic patient.

DEDICATED PROCESSOR.
No other system offers this feature. The 2600's dedicated processor, located inside the scanner, lets you analyze one patient while scanning another. No computer timesharing.

EXCLUSIVE HAND-HELD CONTROLLER AND LASER LOCATOR.

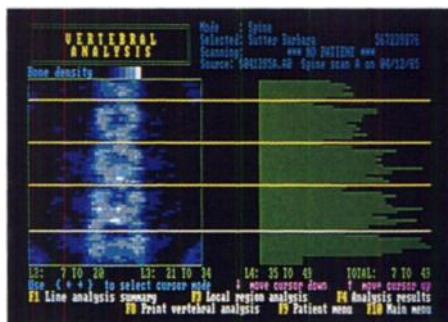
For ease of operation and superior flexibility, nothing equals the 2600's hand-held controller/laser locator combination. There are no blind setups from the computer terminal. Scan limits are defined by the operator, while at the patient's side.

SUPERIOR COMPUTER POWER. Depending on your needs, you can choose to have your 2600 equipped with either an IBM-XT or AT personal computer. A high resolution color monitor, the PC-DOS operating system, Norland's exclusive BoneStar software, plus a color graphics printer provide unmatched computing capabilities and clinical reports.

EXTENSIVE DATA ANALYSIS CAPABILITIES

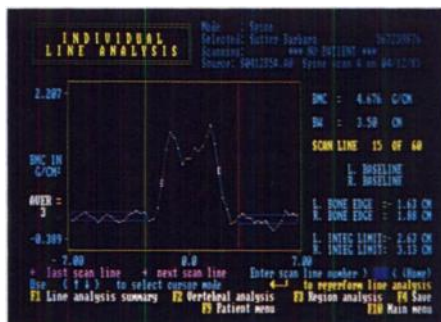
VERTEBRAL ANALYSIS:

This mode allows the operator to individually quantify the L2-L3-L4 vertebral segments. A visual color spectrum of the scan area displays the various levels of bone density. Calculated bone measurements include total bone mineral, average linear and areal density, bone area, bone width, and line extent.

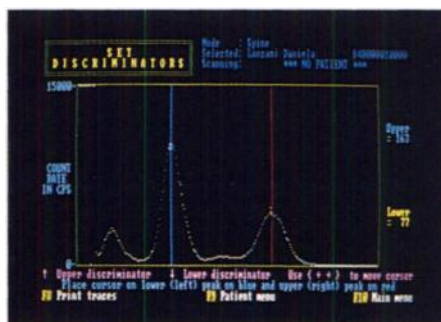


LOCAL REGION ANALYSIS:

For site specific analysis purposes, this exclusive feature defines a specific region anywhere in the scan. An adjustable size cursor allows access to the density of areas such as intra vertebral and femoral neck. Even kidney stones can be analyzed.



INDIVIDUAL LINE ANALYSIS: If desired, a more detailed analysis can be performed on an individual scan line. BoneStar software allows the operator to modify computer selected baseline and bone edge parameters where necessary.



AUTOMATIC DISCRIMINATOR SETTINGS: The 2600 locates current and previous peak centroids and displays them in a true multi-channel gamma spectrum.

For more detailed information on Norland's complete line of single and dual photon bone densitometers, contact us at the address below. We've been making quality bone densitometers since 1970.

In the U. S. and Latin America:
Beta Diagnostics
(exclusive distributors)
509 McMillen Street
Fort Atkinson, WI 53538
(414) 563-9341

In Europe:
Norland Scientific Instruments B. V.
Van Houten Industriepark 11
1381 MZ Weesp.
The Netherlands
Tel: (31) 2940-19955
Telex: 18330 NORLD

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Norland Drive
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New Dynamic Cardiac Phantom Outperforms the Field!

Offers the Most Versatility*
for Quality Control in
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Gated Radionuclide
Ventriculograms (GRNV)

- Provides excellent simulation of left and right ventricle wall motion and volume changes, with constant background activity, to test gated radionuclide ventriculography hardware and software.

- Allows acceptance and QA testing for data acquisition instruments, data processing software, and overall cardiac systems.

- Renders realistic radionuclide ventriculogram and cardiac volume trace.

- Has adjustable heart rate and ejection fraction levels.

- Easy to load and operate; an excellent training aid for all nuclear cardiology personnel.

* An article comparing our new Dynamic Cardiac Phantom with other commercially available phantoms appears in the March 1985 issue of JOURNAL OF NUCLEAR MEDICINE TECHNOLOGY, Vol. 13, No. 1, Pgs. 5-9. In the article, "The Use of Phantoms for Quality Control in Gated Cardiac Studies", the authors, Busemann-Sokole and Craddock, state that our cardiac phantom "produces a good simulation of left and right ventricular wall motion and stroke volume changes, and constant overlying background activity", and "offers the most versatility for routine quality control of the overall system". Copy of article available on request.

For more information, request Bulletin 368-B

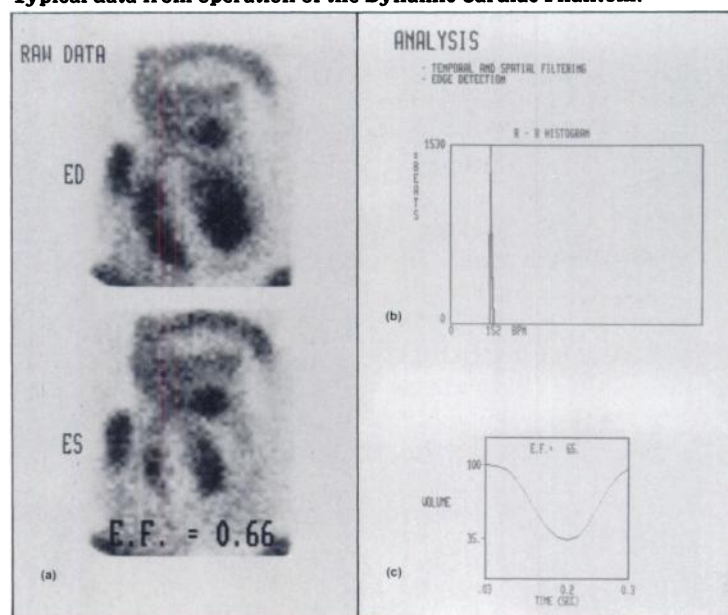
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Typical data from operation of the Dynamic Cardiac Phantom:



(a) End diastole and end systole frames of a GRNV series.
(b) Histogram of R-R time period showing temporal stability.
(c) Cardiac volume graph from phantom operation.

New Products

Each description of the products below was condensed from information supplied by the manufacturer. The reviews are published as a service to the professionals working in the field of nuclear medicine and their inclusion herein does not in any way imply an endorsement by the Editorial Board of The Journal of Nuclear Medicine or by The Society of Nuclear Medicine.

The VEST



A ventricular evaluation system for continuous monitoring of beat-to-beat left ventricular function in ambulatory patients has been codeveloped by Massachusetts General Hospital and Capintec.

Used primarily to monitor the effects of daily activity on left ventricular function, the device simultaneously records radionuclide time activity and ECG data, providing a number of cardiac parameters including ejection fraction. **Capintec, Inc., 6 Arrow Road, Ramsey, NJ 07446**

Circle Reader Service No. 101

Gadolinium-153 Source

Du Pont Diagnostic Imaging Div. introduced a gadolinium-153 source for dual-photon bone mineral content analyzers, used to diagnose osteoporosis, to determine fracture risk, and to measure key fracture sites. Available in a 1-Curie capsule, the gadolinium-153 source works with all commercially available dual-photon bone mineral content analyzers, according to the company. **DuPont Diagnostic Imaging Div., 331 Treble Cove Road, No. Billerica, MA 01862**

Circle Reader Service No. 102

Image Processing Computer

Digital Design has introduced an image processing computer, instead of a general purpose computer, to be used for faster and more accurate diagnostics.

The system is built around a semi-conductor memory of 16 Mbyte that allows the storage of the operating system, all programs, and the data collected from a study performed in frame or in list mode.

This concept allows the 32-bit input bus to be available at all times for the acquisition

of data that can be processed at the speed of 200,000 counts/sec without losses, according to the company. The Winchester disk of 300 Mbytes is used only to archive the study after it has been acquired and processed. **Digital Design, 3060 Business Park Drive, Suite E, Norcross, GA 30071**

Circle Reader Service No. 103

Multigated Acquisition Software Program

Picker International has introduced a new multigated acquisition software program for use with its PCS-512 nuclear computer system. This program offers a twenty-fold speed advantage over traditional gated blood pool programs, according to the company. It provides peak filing rate and peak ejection rate within the cardiac volume curve with the accuracy obtained by non-imaging nuclear probes, said Picker.

The program selects very low noise framing data using cycle dependent background subtraction. With this approach, more accurate data is collected, which permits more exact calculations of the volume curve, and requires less than 30 sec to run with minimal operator interaction, according to Picker. **Picker International, Nuclear and Ultrasound Division, 12 Clintonville Road, P.O. Box 99, Northford, CT 06472**

Circle Reader Service No. 104

Liquid Scintillation Analyzer

Packard Instrument Company introduced its Tri-Carb® 2000 liquid scintillation analyzer. The new instrument, based on the firm's Tri-Carb 2000CA computer-aided analyzer, offers high sample capacity, three-dimensional spectrum analysis, and a linear spectrum analyzer which allows precise optimization of counting regions over the entire sample spectrum, according to the company.

Operating features include a Varisette™ sample changer, designed to allow users to count both small and large vials in the same instrument without adapters. The sample changer accepts up to 408 large or 792 small vials. **Packard Instrument Company, 2200 Warrenville Road, Downers Grove, IL 60515**

Circle Reader Service No. 105

Thyroid Uptake System



Atomic Products has introduced a dedicated thyroid uptake system that features memory capacity for eight separate patients with three measurements each. The Thyroid Uptake System II also features automatic decay correction, including final uptake percentage. **Atomic Products Corporation, 49 Natcon Dr., P.O. Box R, Shirley, NY 11967-0917**

Circle Reader Service No. 106

Patient Data Manager System

Berthold Analytical Instruments, Inc. has introduced a new software package for the management of patient and quality-control data. The Patient Database Manager System (PDB) is a complete package intended for use with the company's single- and multi-crystal gamma counters and their luminescence immunoassay analyzers. The PDB software is designed to be run on an IBM XT or compatible personal computer.

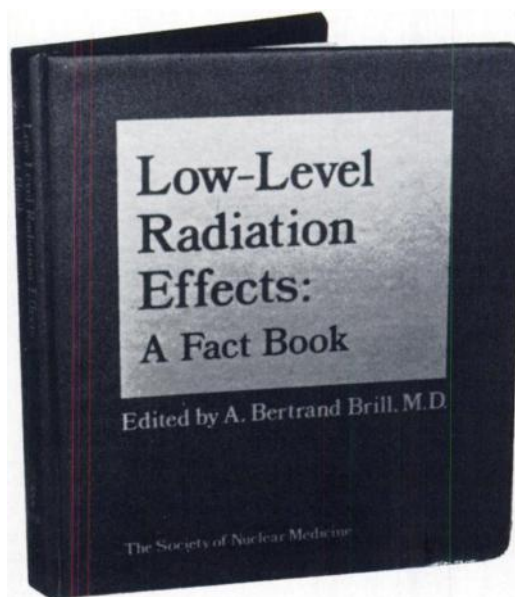
The PDB system performs tasks such as generating worklists for assay runs, printing labels for specimen or assay tubes, producing patient- and physician-oriented reports, and generating invoices. In addition, the PDB program performs complete, on-line Westgard Multi-Rule analysis of quality-control data, and offers a complete QC documentation report, according to the company. **Berthold Analytical Instruments, Inc., 28 Charron Avenue, Nashua, NH 03063**

Circle Reader Service No. 107

SNM announces the 1985 updates to . . .

Low-Level Radiation Effects: A Fact Book

Edited by
A. Bertrand Brill, M.D.



This book represents a conscientious attempt to provide an unbiased, up-to-date source of knowledge regarding the potential long- and short-term effects of radiation exposure to humans. Because radiation exposure is an important and controversial topic, so much material is available. This fact book contains a concise reference list for readers wishing to obtain additional, or more detailed, information.

Important new sources of information provided the stimulus for publishing the 1985 updates to keep the fact book current. New reports issued by UNSCEAR, ICRP, and NCRP and references to recent publications of findings among Japanese A-bomb survivors have been added.

Available alone, or included with the original document, the 1985 updates will prove indispensable to a wide range of physicians, scientists, engineers, and technologists involved in the field.

"Only when information issued in a publication such as this becomes widespread and understood can rationality prevail in the public's attitude toward low-level radiation."

— from the Foreword by
Rosalyn Yalow, Ph.D.
Nobel Laureate

Contents

- Glossary, Units, and Conversion Factors
- Radiobiology
- Radiation Doses
- Late Somatic Effects of Low Doses of Ionizing Radiation
- Genetic Effects
- Risks—Statistical Facts and Public Perception
- Questions and Answers
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- Recommended Readings

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Positions Open

Physician

NUCLEAR MEDICINE SPECIALIST, also Board certified or eligible in Diagnostic Radiology. Position entails a major role in R&D of nuclear medicine techniques and clinical services in the associated VA Medical Center, as well as research and teaching in radiology and nuclear medicine at the University of Iowa. The VAMC also provides significant opportunities for research. Interested applicants should send a CV to: Peter T. Kirchner, MD, Director, Division of Nuclear Medicine, University of Iowa, College of Medicine, Department of Radiology, 7006 RCP, Iowa City, IA 52242. The University of Iowa is an Affirmative Action/Equal Opportunity Employer.

NUCLEAR MEDICINE PHYSICIAN, SENIOR INVESTIGATOR, BIOTECHNOLOGY. Excellent opportunity for nuclear medicine physician to participate in active clinical research program involving monoclonal antibodies for cardiac and tumor imaging. Develop and monitor clinical research trials being conducted at leading nuclear medicine sites in U.S. and Europe. Interact with other investigators, radiochemists, biostatisticians, and data management group. Qualifications: Research experience in cardiac imaging, oncologic nuclear medicine, immunology, or radiopharmaceutical development. Open either to individuals who recently completed training or to more experienced clinicians. Clinical or teaching activities feasible. Significant potential for professional growth. Position in Medical Affairs Department available immediately. Centocor is located 30 minutes from downtown Philadelphia. Send CV to: Harvey J. Berger, MD, Senior Vice President, Medical Affairs, Centocor, Inc., 244 Great Valley Parkway, Malvern, PA 19355; (215)296-4488. Centocor is an Equal Opportunity Employer.

THE VETERANS ADMINISTRATION MEDICAL CENTER, West Haven, Connecticut and Yale University School of Medicine, Department of Diagnostic Radiology, are seeking a Board certified or Board eligible nuclear medicine physician for academic appointment at the assistant professor level. The successful candidate will work in conjunction with a second nuclear medicine physician. Research and teaching opportunities are available throughout the entire Yale Medical Center. Candidates will be judged on clinical expertise as well as their qualifications for teaching and performing research. Applicants should respond prior to May 30, 1986, by submission of CV and a list of referees to Paul B. Hoffer, MD, Department of Diagnostic Radiology, Yale University School of Medicine, 333 Cedar St., New Haven CT 06510. Yale University is an Affirmative Action/Equal Opportunity Employer. Applications from women and members of minority groups are encouraged.

Chemist

RADIOPHARMACEUTICAL/SYNTHETIC CHEMIST. The Division of Nuclear Medicine at the George Washington University Medical Center is seeking a qualified person for the preparation of radiohalogenated receptor-binding radiotracers. In addition to the preparation of radioligands, the applicant will characterize metabolites of these radioligands by HPLC. Salary commensurate with experience. Send letter of application, CV and the names of three references to: Geri Rosen, Grants Management, Radiopharmaceutical Chemistry Section, The George Washington University, 2300 Eye St., N.W., Room 708, Washington, DC 20037; (202)667-3371. EOE.

Resident

The Division of Nuclear Medicine of the Department of Medicine at North Shore University Hospital offers a 2-year residency in nuclear medicine. North Shore University Hospital is an affiliated teaching hospital of the Cornell University Medical College. The program is comprehensive with training in all aspects of diagnostic and therapeutic tracer medicine. There is strong emphasis on measurements of physiologic parameters and thyroidology, cardiology, and nephrology. A PET-CYCLOTRON facility is under development and will add to the scope of the residency program. Inquiries may be addressed to: D. Margouff, MD, Chief, Division

of Nuclear Medicine, North Shore University Hospital, 300 Community Dr., Manhasset, NY 11030. An Equal Opportunity Employer.

POSTDOCTORAL FELLOWSHIP—CONTRAST AGENTS. Department of Radiology at Harvard Medical School and The Brigham and Women's Hospital has a NIH-NRSA postdoctoral position available in the Contrast Agent Laboratory, July 1st, 1986. Active projects include paramagnetic NMR imaging agents and liposome delivery of CT contrast materials. Chemist with some experience in NMR, liposomes, radioactivity, metal ligands, or biodistribution studies desired. For more information write to: Monte Blau, PhD, Radiology Dept., Brigham and Women's Hospital, 75 Francis St., Boston, MA 02115. The Brigham and Women's Hospital is an Equal Opportunity/Affirmative Action Employer.

Physicist

TECHNICAL DIRECTOR NUCLEAR MEDICINE SERVICE. The Veterans Administration Medical Center, Gainesville, FL is seeking a nuclear medicine physicist. The Gainesville VAMC is affiliated with the University of Florida Shands' Teaching Hospital and the applicant will have an opportunity to work with all nuclear medicine personnel in the fully integrated radiology program. Board certified or Board eligible candidates who have a PhD and a strong interest in research and teaching preferred. Computer programming skills are desirable. Clinical duties will include physics support of clinical activity quality control, and supervision of the hospital radiation control program. Academic duties will include teaching of medical students, residence and graduate students in medical radiation, physics students in medical radiation physics program. Salary commensurate with qualifications and experience. Send CV to: Clyde M. Williams, MD, Chief, Nuclear Medicine Service (115, VAMC, Gainesville, FL 32602.) For further information, please call personnel service at (904) 374-6003. The VAMC is an Equal Opportunity Employer.

Technologist

SENIOR NUCLEAR MEDICINE TECHNOLOGIST. CLINICAL RESEARCH ASSOCIATE, BIOTECHNOLOGY. Excellent opportunity for senior nuclear medicine technologist to participate in active clinical research program involving monoclonal antibodies for cardiac and tumor imaging. Work closely with senior investigators in developing and monitoring clinical research trials being conducted at leading nuclear medicine sites in U.S. and Europe. Interact with investigators, biostatisticians, and data management group. Qualifications: Experience in nuclear medicine research and/or data management. Must be willing to travel and work independently. Significant potential for professional growth. Position in Medical Affairs Department available immediately. Centocor is located 30 minutes from downtown Philadelphia. Send CV to: Harvey J. Berger, MD, Senior Vice President, Medical Affairs, Centocor, Inc., 244 Great Valley Parkway, Malvern, PA 19355; (215)296-4488. Centocor is an Equal Opportunity Employer.

NUCLEAR MEDICINE TECHNOLOGIST. Registered or registry eligible technologist to work in private office. Special emphasis on nuclear cardiology. Salary negotiable. Send resume to: Box 505, Society of Nuclear Medicine, 136 Madison Ave., 8th fl., New York, NY 10016. EOE.

NUCLEAR MEDICINE TECHNOLOGIST. Washington County Hospital Association, an acute care, regional trauma center located approximately 70 miles west of Baltimore and Washington, DC has a full-time position available for a nuclear medicine technologist. Our department includes a full-time nuclear medicine physician and has two large field-of-view and two small field-of-view gamma cameras and two computers. Experience in the performance of nuclear cardiology studies needed. Qualified candidates must be certified or eligible to be certified. Interested candidates should call or send resume to: Employment Coordinator, Washington County Hospital Association, 251 E. Antietam St., Hagerstown, MD 21740, (301)824-8500. EOE M/F.

NUCLEAR MEDICINE TECHNOLOGIST. Full-time position available in busy cardiology prac-

tice for certified nuclear medicine technologist. At least 1 year experience in nuclear cardiology procedures required. Excellent benefit package. Submit resume and letters of reference to: Albuquerque Cardiovascular Associates, 201 Cedar, SE, Suite 604, Albuquerque, NM 87106. EOE.

CERTIFIED NUCLEAR MEDICAL TECHNOLOGIST. Full-time position available in a rapidly changing large progressive outpatient diagnostic and treatment center located in the wine country of Northern California. Salary, benefits, and professional growth are excellent for the motivated technologist. All imaging studies are performed with the current exception of SPECT and cardiac. Contact: Santa Rosa Radiology, 121 Sotoyome St., Santa Rosa, CA 95405, Judy Clarke, CNMT, RDMS (707)546-4062, ext. 45.

PROGRAM COORDINATOR (DIRECTOR). Nuclear Medicine Technologist Program, Division of Medical Imaging and Therapy, School of Community and Allied Health, The University of Alabama at Birmingham. 12-month, tenure earning faculty position. Qualifications: BS degree required; masters degree preferred. Demonstrated experience in teaching and clinical skills. Must be certified in nuclear medicine technology. Salary and rank commensurate with experience and qualifications. The deadline date for application is July 15, 1986. Send resumes to: Chairman, Search Committee, Room 118, RTI Building, The University of Alabama at Birmingham, Birmingham, AL 35294. UAB is an Equal Opportunity/Affirmative Action Employer.

HEALTH PHYSICS TRAINEE. Immediate opening for a candidate with BS plus CNMT and also an RT in x-ray with knowledge of radiology/nuc. med. regs. would be ideal. Will train in area(s) of weakness. Initially 25 hr/wk—but soon full time. Excellent benefits. Must live in 1 hr radius of Reading, PA. Tired of salary plateaus? Start a new scale! For more information and interview date send resume and photo to: Walter L. Robinson & Associates, 2624 Spring Valley Rd., Lancaster, PA.

CLINICAL RESEARCH. CLINICAL RESEARCH ASSOCIATE, general nursing or nuclear medicine technologist. Candidate will use researched information to design clinical trial plans for manufacturer of radiopharmaceuticals. Ideal candidate will have management background (project management preferred), excellent communication skills and proficiency in nuclear medicine/general nursing. Minimum education requirement is a BA in physical or biological sciences with 4-6 years experience in job related field. Send resume to: Medi-Physics, Inc., 4050 Lakeside Dr., Richmond, CA 94806, Attn: Human Resources. EOE.

Positions Wanted

Physician

US GRAD. PHYSICIAN FOR NUCLEAR MEDICINE/DIAGNOSTIC RADIOLOGY. Trained at SUNY Downstate and Memorial Sloan-Kettering Cancer Center. BE in both specialties. Northeast or South FL preferred. Reply: Box 503, Society of Nuclear Medicine, 136 Madison Ave., New York, NY 10016.

NUCLEAR MEDICINE PHYSICIAN, MD, BC/ABNM, clinical and research experience, seeks full-time NM position for July, 1986. Reply: Box 500, Society of Nuclear Medicine, 136 Madison Ave., New York NY 10016.

Pathologist

NUCLEAR MEDICINE PATHOLOGIST. Well-trained in large medical center in NYC. Skilled in nuclear cardiology, SPECT, RIA. Available July 1, 1986. Reply to Box 501, Society of Nuclear Medicine, 136 Madison Ave., New York, NY 10016.

Pharmacist

NUCLEAR PHARMACIST, MS 1974, seeking medical school/clinical situation; prefer NC, SC, or VA; 4 years at NIH; 3+ years as manager of commercial nuclear pharmacy; 3+ years RSO/env. health at USNRC Board license R&D medical school. Available immediately. Box 504, 136 Madison Ave, NY, NY 10016.

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TURN TO PAGE 22A OF THIS ISSUE

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Position requires college degree in science with at least two to five years marketing experience in Nuclear Medicine preferred. MBA preferred.



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Please reply with curriculum vitae to: **Solange Israel-Mintz, Centocor, 244 Great Valley Parkway, Malvern, PA 19353.** Equal Opportunity Employer.

NUCLEAR MEDICINE TECHNOLOGIST

Progressive, acute-care, 886-bed hospital in the heart of the Ozarks is seeking two full-time registered technologists. Currently performing all routine nuclear medicine procedures including cardiovascular imaging. Competitive salary and excellent fringe benefits. Send resume to, or call collect:

Jerri Flikkema, Personnel Department
St. John's Regional Health Center
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Nuclear Medicine Technologist I

University Hospital is a 524-bed teaching hospital affiliated with and located on the campus of the University of Saskatchewan.

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S7N 0X0



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(Baton Rouge, LA)

Oversee the Nuclear Medicine Department of Our Lady of the Lake Regional Medical Center in Baton Rouge, Louisiana. Position is immediately available in the Diagnostic Laboratory of our 819-bed acute care facility. Selected applicant must be certified in Nuclear Medicine with minimum 5 years experience including at least 2 years as supervisor, and a 4-year degree in biological science. A degree in business or psychology may also be considered. We offer an excellent salary structure and benefits package, plus relocation assistance. Qualified candidates, send your resume to:

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Nuclear Medicine Review — 1986

August 25th–28th

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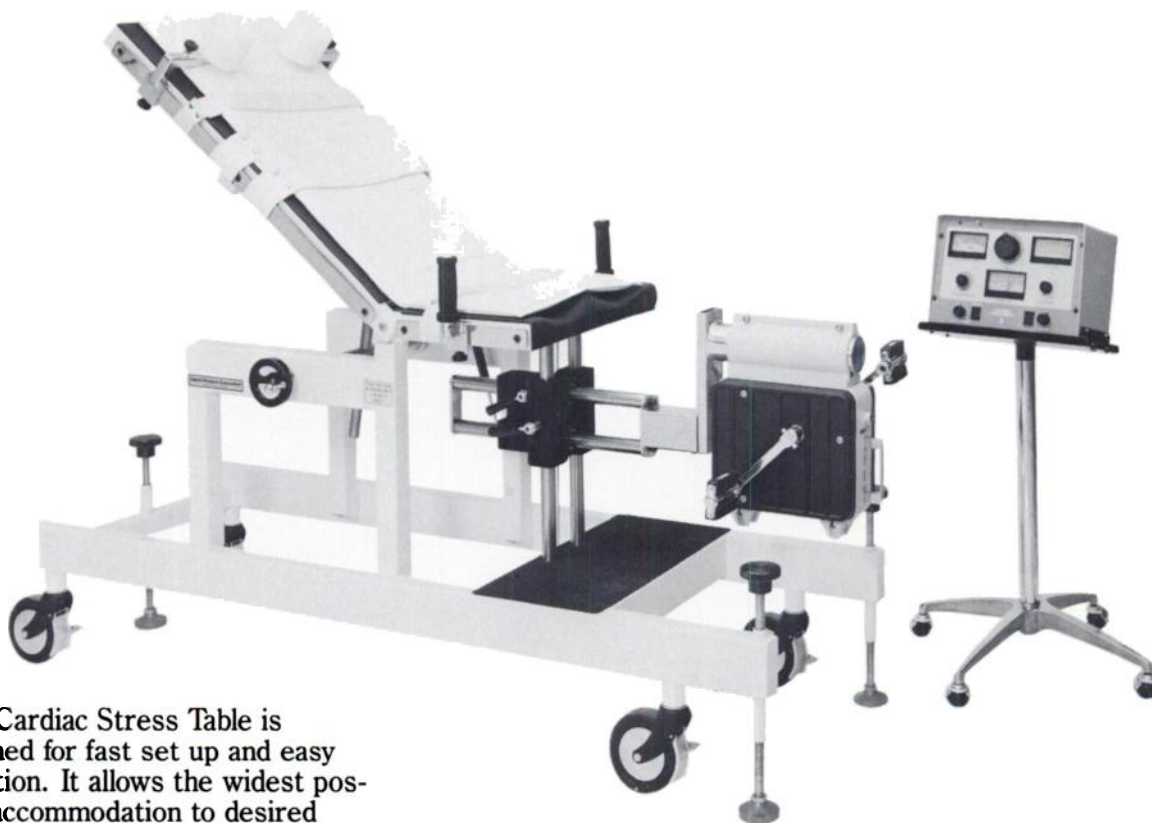
This course will provide an intense review of nuclear medicine including the basic science of radiation physics, instrumentation, radiochemistry and pharmacy, in vitro and radiobioassay, scintigraphic imaging, radionuclide in vivo function tests and radionuclide therapy. It is a supplement to residency training in nuclear medicine and nuclear radiology and is not designed to substitute for this type of training. The course may serve as a survey of nuclear medicine science for physicians or others seeking an overview of this subject.

The faculty consists of members of the Andre Meyer Department of Physics-Nuclear Medicine and invited guests.

Course Director: Stanley J. Goldsmith, MD.

For further information contact: Ms. Mary Farrell-Batista—(212)650-7888.

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The combination of angulated back and moveable ergometer creates the most comfortable patient

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The Cardiac Stress Table sets the standard for exercise imaging. From your Nuclear Medicine Source...Atomic Products Corporation.

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TSC

Technetium 99m

Kit for the Preparation of Technetium Tc 99m Sulfur Colloid Injection

- 14,800 MBq (400 mCi) per vial maximum activity.
- Only one 5 minute boil is necessary; no need to re-boil, which takes more time and can add to personnel exposure rates.
- Can be rapidly cooled, greatly reducing costly early morning time delays.
- High reticuloendothelial system uptake: in average patients, 80 to 90% of the injected particles to the liver, 5 to 10% to the spleen and the balance to the bone marrow.
- Stable formulation: may be used up to six (6) hours after preparation.

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TECHNETIUM Tc 99m TSC KIT FOR THE PREPARATION OF TECHNETIUM Tc 99m SULFUR COLLOID INJECTION For complete prescribing information consult package insert, a summary of which follows:

DESCRIPTION: Each kit contains sufficient material to prepare five (5) formulations. Each formulation consists of a reaction vial containing 0.5 ml 1.0 N hydrochloric acid, and two syringes, one containing a 1.1 ml aqueous solution of 1.9 mg sodium thiosulfate anhydrous and the other containing 5.3 mg gelatin in 2.1 ml of an aqueous buffer solution containing 177 mg sodium acetate anhydrous. All components are sterile and pyrogen-free. When a solution of sterile and pyrogen-free Sodium Pertechnetate Tc 99m Injection is mixed with these components, following the instructions provided with the kit, Technetium Tc 99m Sulfur Colloid Injection is formed. The product so derived is intended for intravenous injection. The precise structure of Technetium Tc 99m Sulfur Colloid Injection is not known at this time. Not less than 92 percent of the radioactivity corresponds to the Technetium Tc 99m in colloidal form.

INDICATIONS AND USAGE: Technetium Tc 99m Sulfur Colloid Injection is used in adults and children as an agent for imaging areas of functional reticuloendothelial cells in the liver, spleen and bone marrow.

CONTRAINDICATIONS: None known.

WARNINGS: Although rare, deaths have occurred following intravenously administered gelatin stabilized Tc 99m sulfur colloid. Advanced cardiopulmonary life support systems should be readily available where and when the drug is administered.

PRECAUTIONS:

General

The contents of the two syringes, one syringe containing the sodium thiosulfate solution and the second syringe containing the appropriate buffer solution, are intended *only* for use in the preparation of the Technetium Tc 99m Sulfur Colloid Injection and are NOT to be directly administered to the patient.

The contents of the kit are not radioactive. However, after the Sodium Pertechnetate Tc 99m Injection is added, adequate shielding of the final preparation must be maintained.

The contents of the kit are sterile and pyrogen-free. It is essential to follow the directions carefully and to adhere strictly to aseptic procedures during preparation. This preparation contains no bacteriostatic preservative.

Sodium Pertechnetate Tc 99m solutions containing more than 10 micrograms/ml of aluminum ion should not be used to formulate the Technetium Tc 99m Sulfur Colloid Injection. The Sodium Pertechnetate Tc 99m solution must also be free of oxidizing agents such as peroxides and hypochlorites.

Technetium Tc 99m Sulfur Colloid Injection is physically unstable, and the particles will settle with time. Failure to agitate the vial adequately before use may result in nonuniform distribution of radioactivity. If there is any delay in administration of the preparation, the syringe should also be gently agitated.

It is also recommended that, because of the increasing probability of agglomeration with aging, a batch of Technetium Tc 99m Sulfur Colloid Injection not be used after six (6) hours from the time of formulation.

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.

Technetium Tc 99m Sulfur Colloid Injection, as well as other radioactive drugs must be handled with care and appropriate safety measures should be used to minimize external radiation exposure to clinical personnel. Also, care should be taken to minimize exposure to patients, consistent with proper patient management.

Carcinogenesis, Mutagenesis, Impairment of Fertility

No long term animal studies have been performed to evaluate carcinogenic potential, mutagenic potential, or whether Technetium Tc 99m Sulfur Colloid affects fertility in males or females.

Pregnancy Category C

Animal reproductive and teratogenicity studies have not been conducted with Technetium Tc 99m Sulfur Colloid Injection. It is also not known whether Technetium Tc 99m Sulfur Colloid Injection can cause fetal harm when administered to a pregnant woman, or can affect reproductive capacity. There have been no studies in pregnant women. Technetium Tc 99m Sulfur Colloid Injection should be given to a pregnant woman only if clearly needed.

Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capability, should be performed during the first few (approximately 10) days following the onset of menses.

Nursing Mothers

Technetium Tc 99m is excreted in human milk during lactation. Therefore, formula feedings should be substituted for breast feedings.

ADVERSE REACTIONS: The following adverse reactions have been reported associated with the use of Technetium Tc 99m Sulfur Colloid: cardiopulmonary arrest, seizures, anaphylactic shock, hypotension, dyspnea, abdominal pain, fever, chills, bronchospasm, nausea, vomiting, perspiration, redness, urticaria, numbness, dizziness, and burning at the injection site.

Several deaths and cases of lung and soft tissue uptake other than RES have been reported in association with the use of Technetium Tc 99m Sulfur Colloid (see WARNINGS).

The size and physical-chemical properties of the sulfur colloid particles formed from the components of the kit may determine the biodistribution of the colloid and its uptake by the RES. Diseases affecting the RES may also alter the expected uptake pattern.

HOW SUPPLIED:

Kit Contents

- 5 STERILE REACTION VIALS, each containing 0.5 ml 1.0 N hydrochloric acid.
- 5 STERILE SYRINGES, (labeled "A"), each containing 1.9 mg sodium thiosulfate anhydrous in 1.1 ml aqueous solution.
- 5 STERILE SYRINGES, (labeled "B"), each containing 5.3 mg gelatin in 2.1 ml aqueous buffer solution containing 177 mg sodium acetate anhydrous.
- 10 PRESSURE-SENSITIVE LABELS for final preparation of Technetium Tc 99m Sulfur Colloid Injection.
- 1 PACKAGE INSERT

Storage

Store kit at room temperature; refrigeration not required.

Circle Reader Service No. 21

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