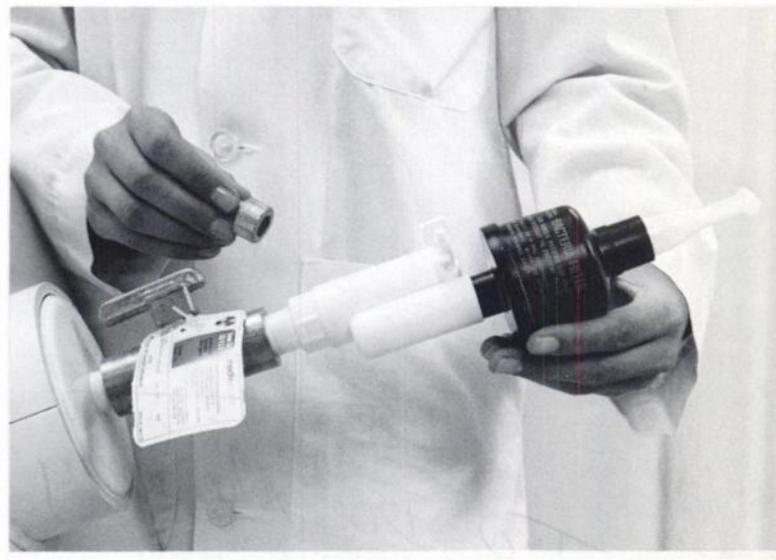
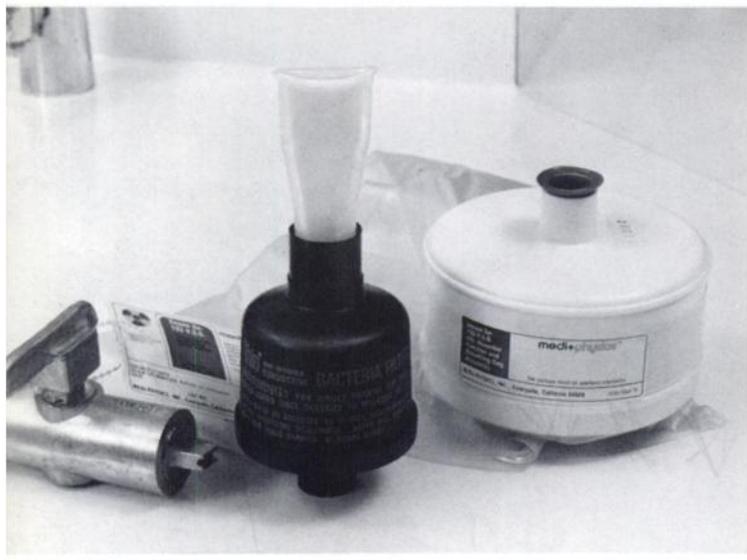


CONSIDERING XENON?



A versatile, disposable system

Xenon Xe 133-V.S.S. includes everything you need for a Xenon Xe 133 ventilation study. The completely disposable system includes the Xenon Xe 133 contained in a valve-shield, a CO₂ absorber and bag for rebreathing and collection of expired xenon, and a filter/mouthpiece assembly.

One system can be used for single-breath, rebreathing and wash-out studies.

The valve-shield can deliver either a concentrated or a dispersed dose.

Safe, convenient assembly

Xenon Xe 133-V.S.S. can be assembled in less than a minute. Radiation exposure is minimized because there is no need to dilute the xenon gas or transfer it to a delivery system. After assembly, the ventilation study may begin immediately.

For complete information consult the package insert, a summary of which follows:

Xenon Xe 133-V.S.S. (Xenon Xe 133) Ventilation Study System

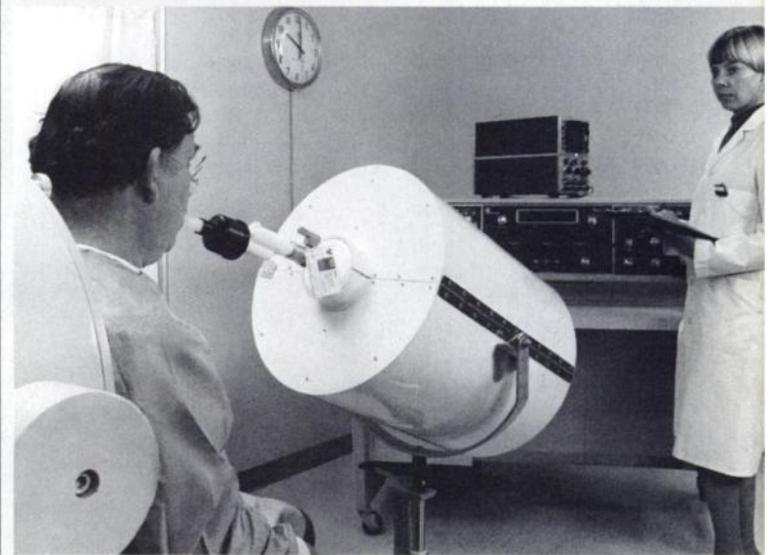
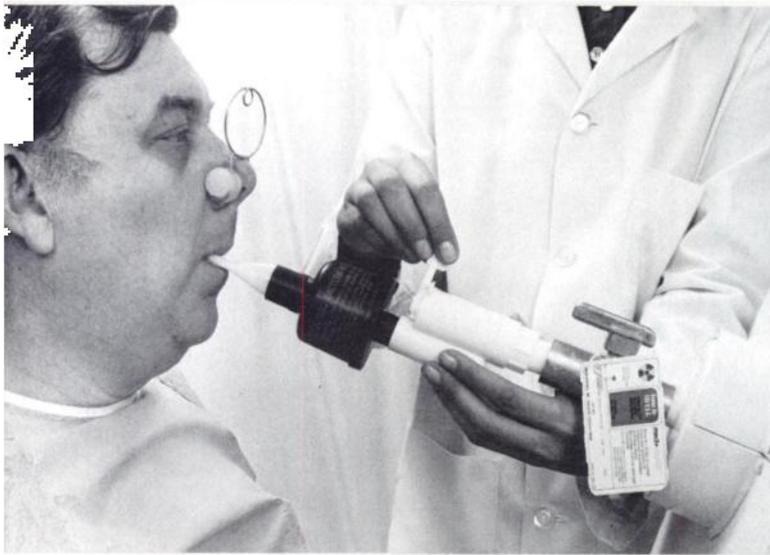
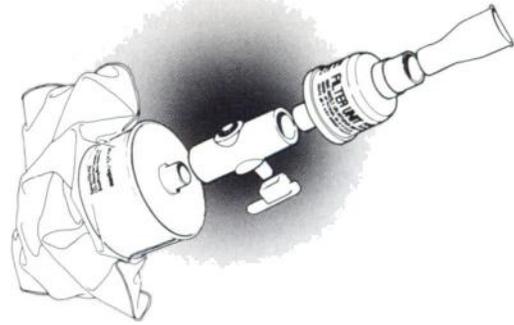
DESCRIPTION: The Xenon Xe 133-Ventilation Study System consists of a sealed frangible capsule containing 10 millicuries \pm 20% of Xenon Xe 133 gas at calibration time and date with less than 1% carrier xenon in air.

INDICATIONS AND USAGE: Study of pulmonary ventilation.

WARNINGS: Xenon Xe 133 should not be administered to children or to patients who are pregnant, or to nursing mothers unless the benefits to be gained outweigh the potential hazards. 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.

Adequate reproduction studies have not been performed in animals to determine whether this drug affects fertility in males or females, has teratogenic potential, or has other adverse effects on the fetus. Xenon Xe 133 should be used in pregnant women only when clearly needed.

CONSIDER MPI's XENON Xe 133-V.S.S. (Xenon Xe 133) VENTILATION STUDY SYSTEM



True, single-unit dose

The MPI Xenon Xe 133-V.S.S. contains enough Xenon Xe 133 for one ventilation study. You only use what you need and are not "locked into" an expensive delivery system that requires daily use to justify costs. Another advantage of single-unit dosage is that the risk of cross infection via reusable apparatus is significantly reduced. Further safety is afforded by the filter/mouth-piece assembly.

Reduced radiation exposure

The Xenon Xe 133 is supplied in a sealed frangible capsule. The valve-shield is designed to prevent radiation leaks during transport and use. Additionally, a shield to reduce radiation exposure to patient and attending personnel and a valve assembly to minimize the escape of exhaled xenon during washout studies are available as accessory components.

PRECAUTIONS: Xenon Xe 133 gas, as well as other radioactive drugs, must be handled with care and appropriate safety measures should be used to minimize radiation exposure to clinical personnel and to patients consistent with proper patient management.

Exhaled Xenon Xe 133 gas should be controlled in a manner that is in compliance with the appropriate regulations of the government agency authorized to license the use of radionuclides.

Xenon Xe 133 gas delivery systems, i.e., respirators or spirometers, and associated tubing assemblies must be leak-proof to avoid loss of radioactivity into the laboratory environs not specifically protected by exhaust systems.

Xenon Xe 133 adheres to some plastics and rubber and should not be allowed to stand in tubing or respirator containers for such unrecognized loss of radioactivity from the dose for administration may render the study non-diagnostic.

ADVERSE REACTIONS: Adverse reactions specifically attributable to Xenon Xe 133 have not been reported.

DOSAGE AND ADMINISTRATION: The recommended activity range for pulmonary ventilation studies in the average patient (70 kg) is 2 to 20 millicuries (0.03 to 0.3 millicuries/kg).

HOW SUPPLIED: Each Ventilation Study System (V.S.S.) contains Xenon Xe 133 in a sealed frangible capsule containing 10 millicuries $\pm 20\%$ at calibration time and date stated on the label.

The sealed capsule is enclosed in a metal valve-shield which is sealed with a plastic shrink-band to prevent accidental loss of xenon during shipping. A Key is provided to remove the end plugs of the valve-shield and to turn the valve fitting which breaks the sealed capsule of Xenon Xe 133. The V.S.S. also includes a disposable filter/mouthpiece assembly and a breathing-collection bag with an attached CO₂ absorber canister.

Emeryville, California (415) 658-2184.

Toll Free (In Calif.) (800) 772-2446. (Outside Calif.) (800) 227-0483.

medi+physics™

NOW AVAILABLE FOR USE WITH UP TO 90 mCi PER VIAL.



Easy to prepare.¹

Stable formulation prepared with stannous tartrate, which is more resistant to oxidation than stannous chloride.²

Lowest dose rate to the lungs of any commercially available kit.³

For ordering, customer service and technical information call toll-free: (800) 431-1146. In New York State, call (914) 351-2131, ext. 227.

CintiChem[®]
TECHNETIUM 99m
MAA

Technetium Tc 99m Aggregated Albumin Kit DIAGNOSTIC - FOR INTRAVENOUS USE

BRIEF SUMMARY OF PRESCRIBING INFORMATION

Indications and usage

Technetium Tc 99m Aggregated Albumin is indicated as a lung imaging agent to be used as an adjunct in the evaluation of pulmonary perfusion.

contraindications

Technetium Tc 99m Aggregated Albumin should not be administered to patients with severe pulmonary hypertension.

The use of Technetium Tc 99m Aggregated Albumin is contraindicated in persons with a history of hypersensitivity reactions to products containing human serum albumin.

warnings

The possibility of allergic reactions should be considered in patients who receive multiple doses.

Theoretically the intravenous administration of any particulate material such as aggregated albumin imposes a temporary small mechanical impediment to blood flow. While this effect is probably physiologically insignificant in most patients, the administration of aggregated albumin is possibly hazardous in acute *cor pulmonale* and other states of severely impaired pulmonary blood flow.

This radiopharmaceutical preparation should not be administered to children, to pregnant women or lactating women unless the expected benefits to be gained outweigh the potential risks.

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.

precautions

In cases of right-to-left cardiac shunt, additional risk may exist due to the rapid entry of aggregated albumin into the systemic circulation.

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

The labeling reactions involved in preparing the agent depend on maintaining the tin in the reduced state. Any oxidant present in the Sodium Pertechnetate Tc 99m supply may thus adversely affect the quality of the prepared agent. Hence, Sodium Pertechnetate Tc 99m containing oxidants, or other additives, should not be employed without first demonstrating that it is without adverse effect on the properties of the resulting agent.

The contents of the vial are sterile and pyrogen-free. It is essential that the user follows the directions carefully and adheres to strict aseptic procedures during preparation of the radiodiagnostic.

Technetium Tc 99m Aggregated Albumin is physically unstable and as such the particles will settle with time. Failure to agitate the vial adequately before use may result in non-uniform distribution of radioactivity.

It is also recommended that, because of the increasing probability of agglomeration with aging, a batch of Technetium Tc 99m Aggregated Albumin not be used after eight hours from the time of preparation. Refrigerate at 2° to 8° C after preparation. If blood is withdrawn into the syringe, unnecessary delay prior to injection may result in clot formation *in situ*.

The contents of the vial are under a nitrogen atmosphere and should be protected from air. On preparation with Sodium Pertechnetate Tc 99m, the contents of the vial should be mixed by gentle swirling to avoid changes in particle size. Do not use if clumping or foaming of the contents is observed.

Adequate reproduction studies have not been performed in animals to determine whether this drug affects fertility in males or females, has teratogenic potential, or has other adverse effects on the fetus. Technetium Tc 99m Aggregated Albumin should be used in pregnant women only when clearly needed.

It is not known whether this drug is excreted in human milk. As a general rule, nursing should not be undertaken while a patient is on a drug since many drugs are excreted in human milk.

Safety and effectiveness in children have not been established.

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 the occupational worker.

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 governmental agency authorized to license the use of radionuclides.

adverse reactions

The literature contains reports of deaths occurring after the administration of aggregated albumin to patients with pre-existing severe pulmonary hypertension. Instances of hemodynamic or idiosyncratic reactions to preparations of Technetium Tc 99m labeled aggregated albumin have been reported.

Hypersensitivity reactions are possible whenever protein-containing materials such as Technetium Tc 99m labeled aggregated albumin are used in man. Epinephrine, antihistamines and corticosteroid agents should be available for use.

how supplied

kit contents

5 STERILE MULTIDOSE REACTION VIALS (10 cc, silver aluminum overseal), each containing 0.34 mg MAA Aggregated Normal Serum Albumin (Human) $2.0 \times 10^6 \pm 25\%$ particles, 0.27 mg stannous tartrate, 0.6 ml of isotonic saline. Hydrochloric acid and/or sodium hydroxide may have been added for pH adjustment.

10 PRESSURE-SENSITIVE LABELS for final Technetium Tc 99m Aggregated Albumin preparation.

1 PACKAGE INSERT.

FOR FULL PREPARATION AND PRESCRIBING INFORMATION, SEE PACKAGE INSERT.

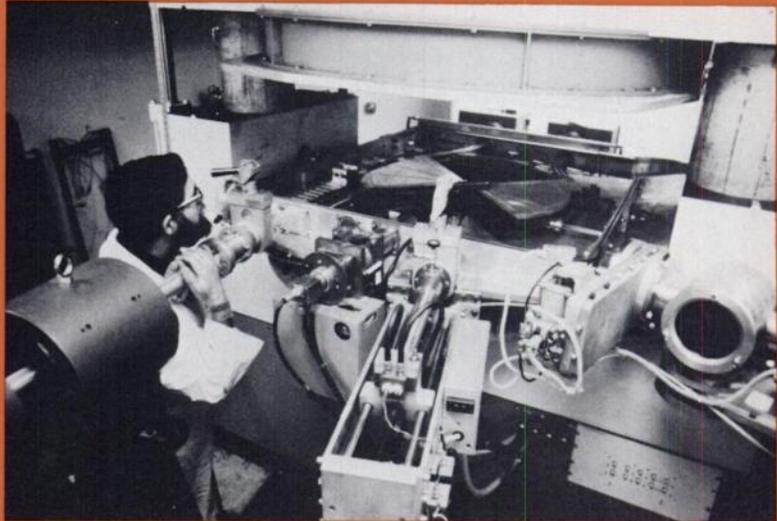
Notes: 1. See package insert for full preparation instructions. 2. Reg. U.S. Pat. Off. #3987157, Union Carbide Corporation, Oct. 19, 1976. 3. Refer to Union Carbide and competitive package inserts for full lung dosimetry information.

UNION CARBIDE FROM ATOM TO IMAGE

Union Carbide Corporation • Medical Products Division •
Nuclear Products • P.O. Box 324 • Tuxedo, New York 10987
CintiChem is a registered trademark of Union Carbide Corporation.

An NEN commitment today
to nuclear medicine's tomorrow:

Our fourth cyclotron.



Nuclear medicine depends upon industry leaders to convert its research concepts into diagnostic agents for routine clinical use. In the past seven years, nuclear medicine has learned it can depend upon New England Nuclear.

In 1979, we are adding our fourth cyclotron...so you can continue to receive all the thallium-201 and gallium-67 you need, when you need it.

In 1982 — tomorrow, at nuclear medicine's pace — we'll be putting the industry's first linear accelerator into production of these important isotopes...and perhaps some new ones you may come up with and help us develop between now and then.

It takes great commitment to keep pace with you, to meet your needs for today while we're investing so heavily in tomorrow.

If that commitment came easy, our competitors wouldn't always be behind us in meeting your needs. But...

We're committed. We're **NEN** New England Nuclear®

Dependable Performers

Minitec[®] **(Technetium Tc 99m)** **Generator**

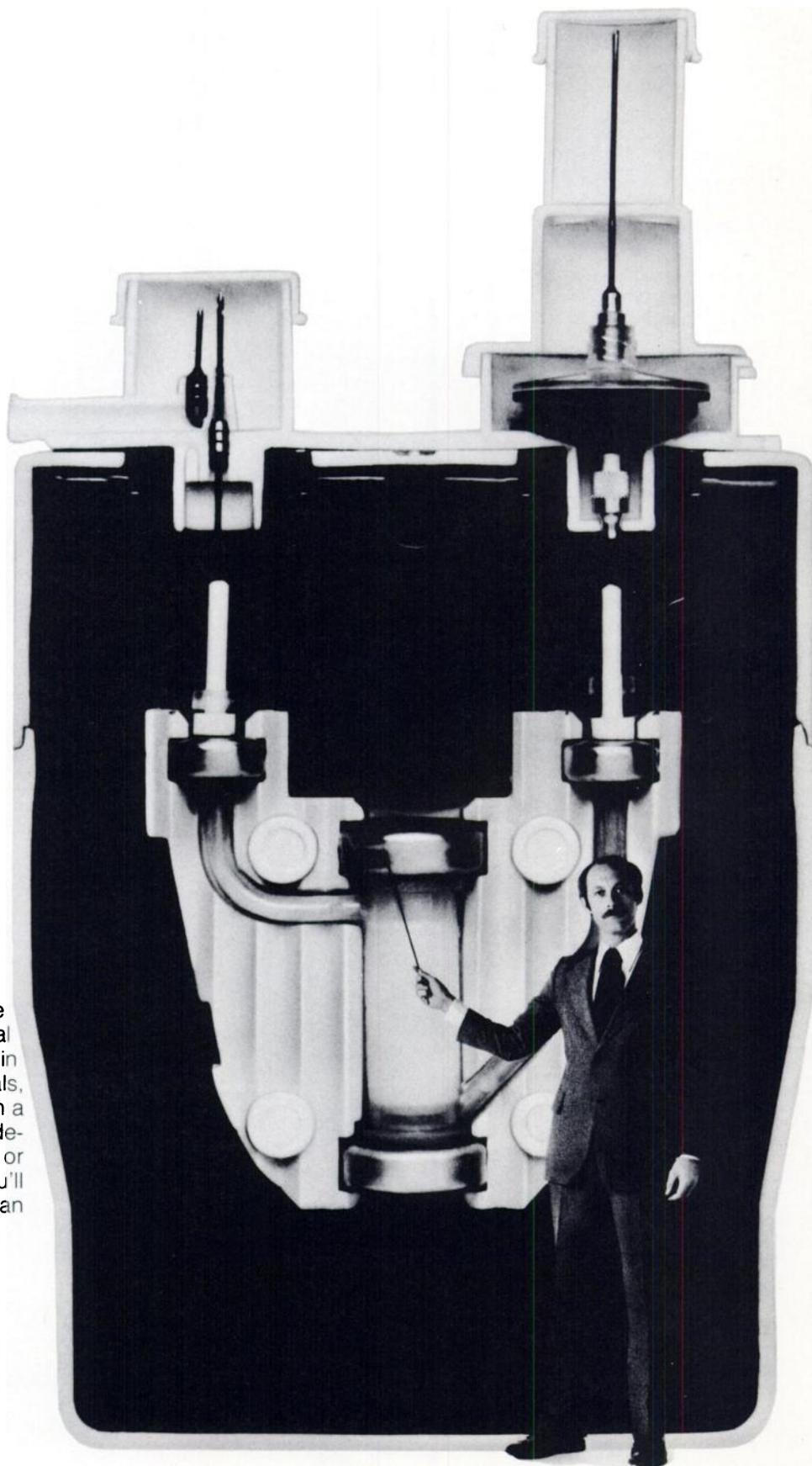
Small in size and light in weight, but big in performance. That's Minitec. Designed for minimum amount of exposure to operator, its unique construction (no exposed tubing) and thick shielding (1 $\frac{5}{8}$ " lead) provide high shielding-to-activity ratio. Small-volume, high-concentration eluates give maximum flexibility for varying applications. Wide range of potencies and calibration dates fit the ^{99m}Tc needs of every lab.

Minitec (Technetium Tc 99m)
Generator — the largest-selling
generator in the U.S.

Squibb **Technical** **Associates**

When you buy Minitec and Squibb radiopharmaceuticals, you get the back-up service of a Squibb Technical Associate. He's had extensive training in nuclear medicine, radiopharmaceuticals, RIA and instrumentation. Call him when a new tech needs instruction, a problem develops, you're planning to expand, or there's need for special information. You'll get the prompt, personal attention of an experienced specialist.

Medotopes[®]



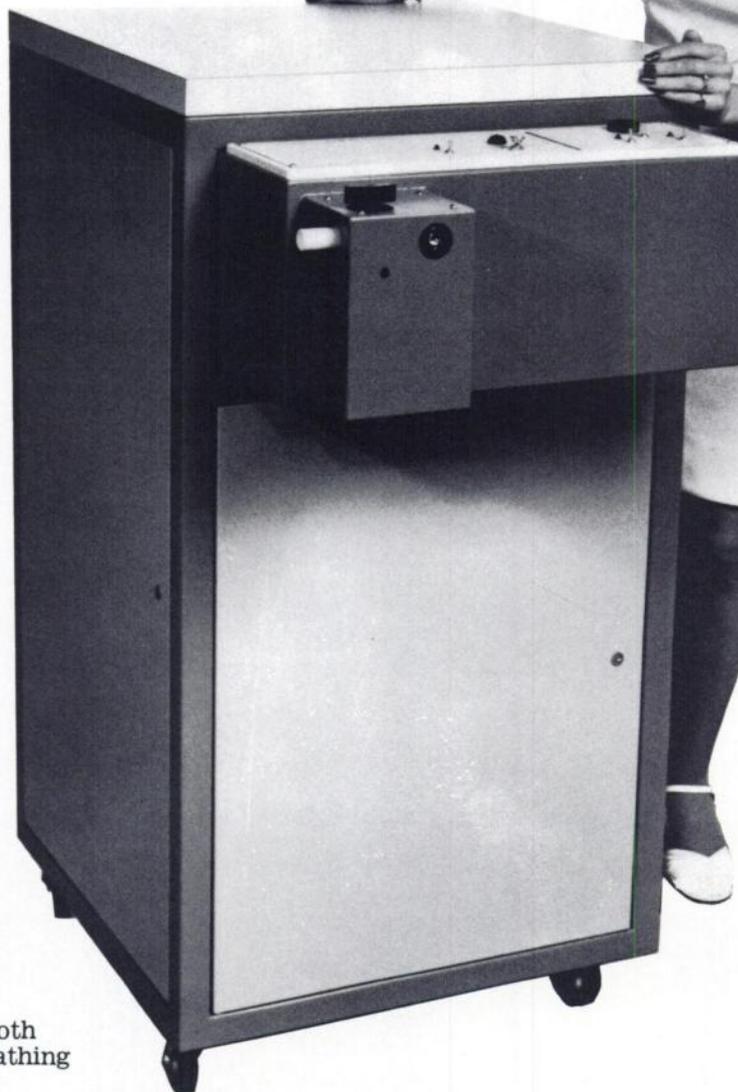
NEW THE XenaCon FROM RADX

A spirometer xenon rebreathing device for less than \$2500!!! Impossible? Almost, but we did it! We used the technology and know-how gained from 5 years of experience with the Ventil-Con and created the first low-cost spirometer xenon unit.

XenaCon I basic spirometer unit

XenaCon II spirometer unit with built-in Xenon Trap

XenaCon III spirometer unit with Xenon Trap and Xenon Trap Exhaust Port Monitor detector/alarm system



PERTINENT SPECIFICATIONS

Mobility: all units are highly mobile, making bedside studies practical

Unit dead space: less than 25 ml in both washout and rebreathing

Spirometer volume: 0-10 liters

Breathing resistance: less than 0.1 inch of water to normal breathing

Shielding: spirometer area — ½ inch lead trap area — ¼ inch lead

Oxygen replenishment: manual pushbutton valve

Xenon injection port: located in head valve for either direct bolus or homogeneous mixture patient administration

Bacteriological filter: inline autoclavable bacteriological filter

CO₂ trap: high capacity, easy access CO₂ trap

Xenon trap cartridge pack: New vertical activated Charcoal cartridge pack eliminates channeling

For more information, call or write Radx today.

RADX

P.O. Box 19164 • Houston, Texas 77024
713-468-9628

TO MONITOR The Chemotherapy Of The Cancer Patient

Diagnostic Biochemistry Inc.

Presents

Doxorubicin [¹²⁵I] (Adriamycin)* Radioimmunoassay Kit

For Investigational Use Only.

High circulating levels of Adriamycin* may result in irreversible myocardial damage, bone marrow depression, and gastrointestinal trauma.^{1,2,3} Knowledge of circulating Adriamycin* concentrations therefore, is important.

Our ¹²⁵I Doxorubicin (Adriamycin) Radioimmunoassay Kit features a rapid, simple procedure with 100 picogram sensitivity in serum, plasma or urine. Six precalibrated standards as well as a control serum are supplied. The stable ¹²⁵I tracer and one hour incubation time makes this kit a unique tool in cancer management.

1. Bonadonna, G. et al: Phase I and preliminary Phase II evaluation of adriamycin (NSC 123127), *Cancer Res.* 30, 2572, 1970
2. Middleman, E. et al: Clinical trials with adriamycin. *Cancer*, 28, 844, 1971
3. Wang, J. et al: Therapeutic effect and toxicity of adriamycin in patients with neoplastic diseases. *Cancer*, 28, 837, 1971

*Trademark Adria Labs.

Methotrexate [¹²⁵I] Radioimmunoassay Kit

High dose Methotrexate therapy in combination with leucovorin "rescue" treatment creates a vital need for close monitoring of circulating Methotrexate plasma levels. Methotrexate overdose has been shown to be associated with severe myelosuppression, renal damage² and hepatotoxicity.³

Our ¹²⁵I Methotrexate Radioimmunoassay Kit provides a rapid simple method, with sensitivity of 10 picograms in serum, plasma, cerebrospinal fluid or urine. Results can be reported in less than 1½ hours. Precalibrated human serum standards and control serum are provided as well as a stable ¹²⁵I tracer and anti-serum.

1. S.W. Pitman et al: Clinical Trial of High-Dose Methotrexate (NSC-740). With Citrovorum Factor (NSC-3590)-Toxicologic and Therapeutic Observations. *Cancer Chemotherapy Reports Part 3* Vol. 6, No. 1, July 1975.
2. Stoller, Ronald G. et al: Use of Plasma Pharmacokinetics to Predict and Prevent Methotrexate Toxicity. *N.E. Jr. of Med.* Vol. 297 No. 12:630-634, Sept. 22, 1977.
3. Jaffe N. and Traggis D. Toxicity of high-dose methotrexate (NSC-740) and citrovorum factor (NSC-3590) rescue in osteogenic sarcoma. *Cancer Chemother. Rep. Part 3, Vol.6(1):31-36, 1975.*

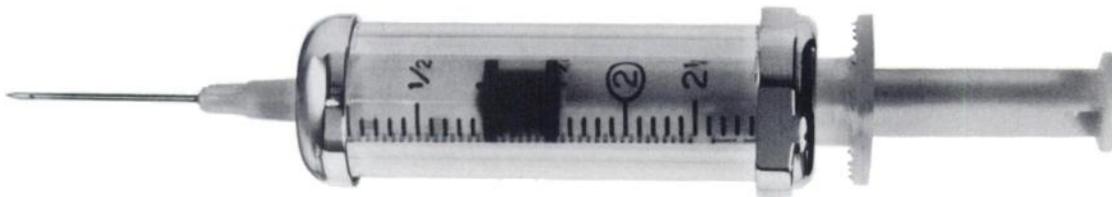
For further information call or write:

**Diagnostic
Biochemistry
Inc.**

(714) 452-0950

10457-H ROSELLE STREET • SAN DIEGO, CA 92121





Look into this syringe shield!

Its high visibility lead glass offers the radiation protection of solid lead.

Offering optically clear, 360 degree visibility, Nuclear Pacific syringe shields are safe, lightweight and easy to handle. Equally important, their professional appearance reduces patient anxiety.

Used extensively by hospitals worldwide, their anti-roll, no-leak design reduces radiation exposure of ^{99m}Tc

by a factor of 6 HVL. An "O" ring seal affords quick, smooth insertion and removal. Standard models in stock include 1cc, 3cc and 5cc syringes with or without Luer Locks.

Remember, for 30 years Nuclear Pacific has set the standard for visibility and protection in the radiation shielding industry.

1. Radiation shielding eyeglasses
2. Lead glass bricks
3. Vial shields
4. Radiation dose shield

Nuclear Pacific, Inc.

6701 Sixth Ave. S., Seattle, WA 98108
(206) 763-2170

"See us at RSNA, Booth 2342"

**NUCLEAR MEDICAL SYSTEMS, INC. introduces
¹²⁵I-RIA Kit* for the DIRECT & SPECIFIC determination of CK-B
(CK-MB) in serum**

CK-B

Creatine Kinase-B

A POSSIBLE AID IN EARLY DIAGNOSIS OF ACUTE M.I.

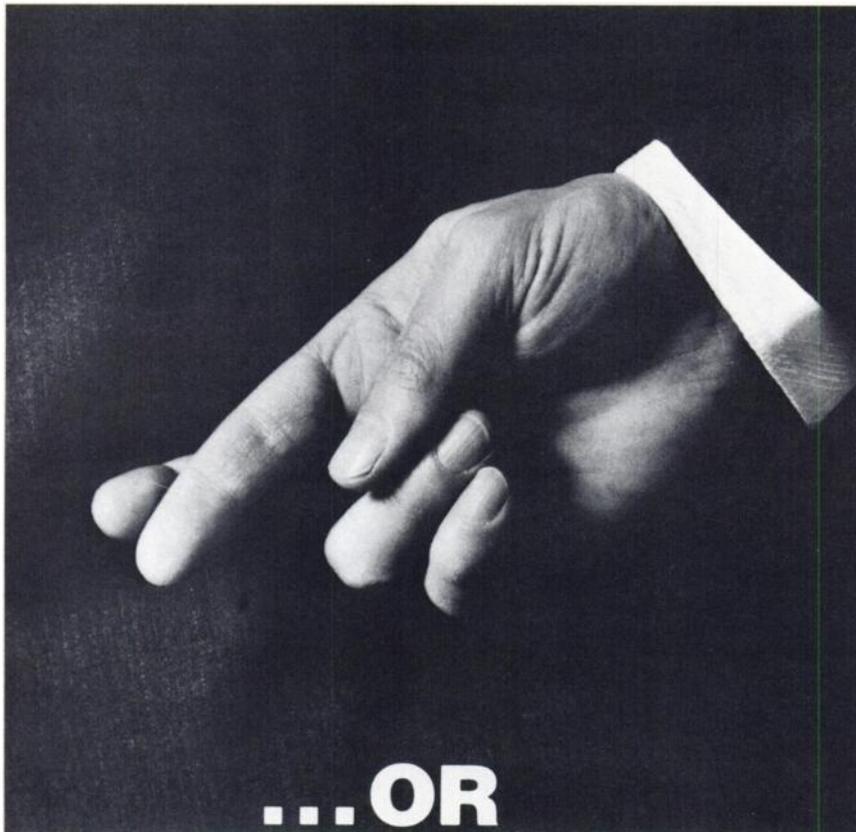
**Patients with Central
Nervous System
abnormalities should be
excluded from this
test because they may also
have increased CK-B
in serum or CSF.**

***For Provisional Use**

**NMS manufactures also a MYOGLOBIN RIA KIT which in the proper context
may be used to assess skeletal muscle damage and for the very early detection of
acute myocardial infarct.**



**NUCLEAR MEDICAL SYSTEMS, INC.
1533 Monrovia Avenue
Newport Beach, CA 92663
(714) 645-2111
(800) 854-3002**



...OR

SEND YOUR SURVEY METERS TO THE EXPERIENCED PROFESSIONALS FOR CALIBRATION.

Health Physics Associates, Ltd., servicing the radiation safety field since 1961, specializes in survey meter repair and calibration...with guaranteed results. All work is performed Accurately, Promptly and Thoroughly by electronic specialists and supervised by qualified physicists certified by the American Board of Health Physics. Instrument calibration is normally **completed in 24-48 hours**. Health Physics Associates, Ltd., services most radiation safety instruments including Geiger Counters, Ionization Chambers, Portable Scintillation Counters, and Direct and Indirect Reading Dosimeters. These services include:

- full preventive maintenance check
- repair and replace all defective components
- all services fully insured
- zero drift and radiation field drift checks
- calibration accuracy of $\pm 10\%$
- meets or exceeds all Federal, State, Local and JCAH requirements
- shipping cases and loaner instruments available

INSTRUMENT SERVICE RECORD

Model # _____ Serial # _____

Calibration Date _____

Calibration Source _____

Maintenance Date _____

Due for Recalibration _____

This instrument meets NRC 10 CFR 34.24 standards. It should be returned for recalibration on date shown for compliance with above and various states requirements. Return to:

HEALTH PHYSICS ASSOCIATES, LTD.

Health Physics Associates, Ltd., also offers these services:

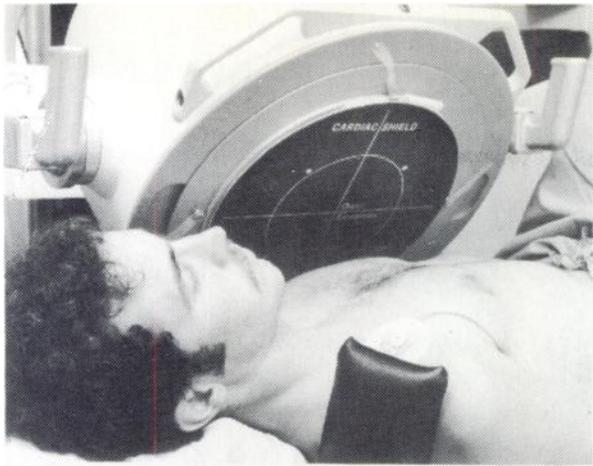
- Leak/wipe tests (mail or personal)
- NRC and State License preparation
- Radiation safety services to meet NRC and State regulations (e.g. Surveys, calibrations, standards)
- Quality Assurance Programs for Nuclear Medicine Departments
- Continuing education programs for staff and laboratory personnel
- Decontamination services
- Emergency room radioactivity services

For more information, write or call us.

HEALTH PHYSICS ASSOCIATES, LTD.
 3304 Commercial Avenue
 Northbrook, IL 60062
 312/564-3330
Providing Radiation Safety Services Since 1961

Please send more information on:

NAME	TITLE
HOSPITAL	DEPARTMENT
ADDRESS	
CITY	STATE
	ZIP CODE



CARDIAC SHIELD

ELIMINATES NON-TARGET PHOTONS

7-day FREE trial!

\$95 SMALL, \$125 LARGE

Phone or write on your professional letterhead:
O'NEILL INC.
 221 FELCH STREET,
 ANN ARBOR, MI, 48103
 AREA 313/973-2335



JNM CLASSIFIED PLACEMENT SERVICE SECTION

This section in the Journal of Nuclear Medicine contains "Positions Open", "Positions Wanted", and "For Sale" listings. Nondisplay "Positions Wanted" ads by members of the Society are billed at 50¢ per word for each insertion with no minimum rate. Nondisplay "Positions Wanted" ads by nonmembers and all nondisplay "Positions Open" and "For Sale" ads by members and nonmembers are charged at 75¢ per word. Display advertisements are accepted at \$110 for 1/8 page, \$155 for 1/4 page, \$260 for 1/2 page, and \$450 for a full page. Closing date for each issue is the 1st of the month preceding publication. Agency commissions and cash discounts are allowed on display ads only. Box numbers are available for those who wish them.

All classified ads must be prepaid or accompanied by a purchase order. Send orders to:

Journal of Nuclear Medicine
 475 Park Ave. South
 New York, NY 10016

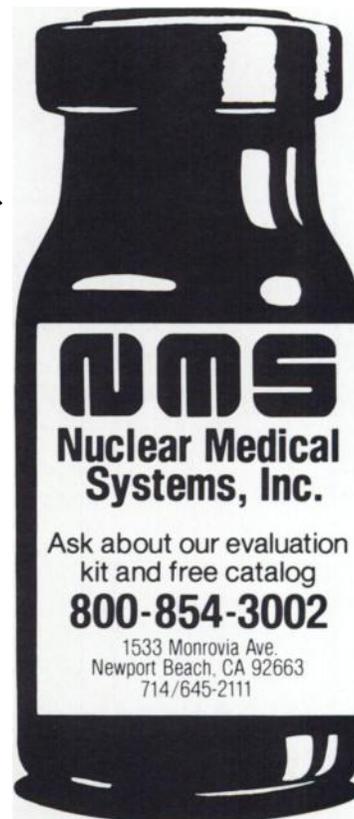
MINI MIZER

THE PROGESTERONE RIA KIT THAT'S A DIRECT ASSAY ON SERUM

No extraction. Double antibody separation. Minimizes human error and technician time.

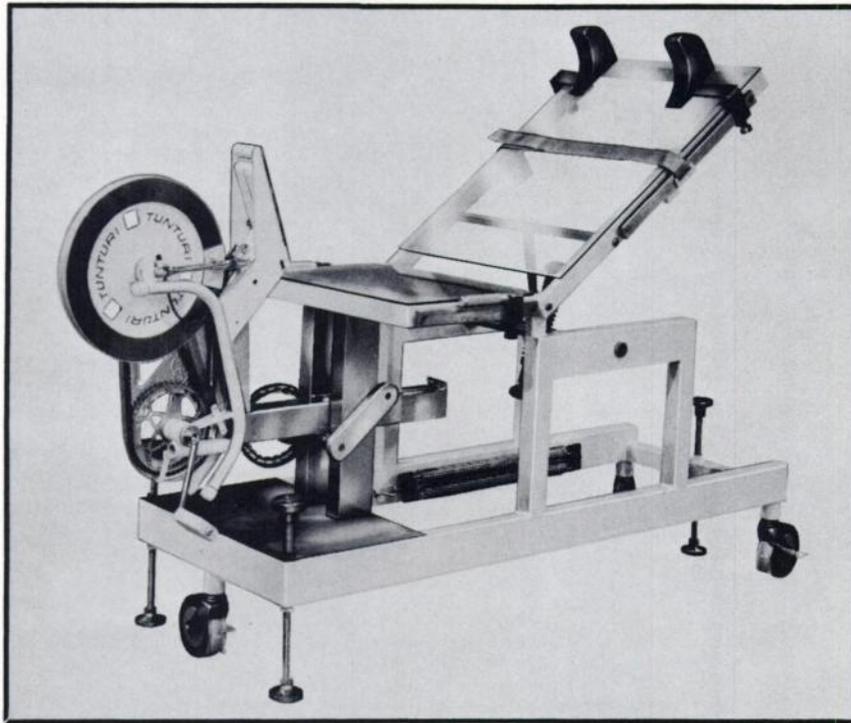
Sample size: 50 ul. Sensitivity and range: 0.5 to 30 ng/ml. Simple. Specific. Rapid.

A full line of RIA Kits and Controls are also available. Free technical help. Fast order turnaround. Substantial savings on standing orders.



Look at this

a cardiac stress system that does more and costs less



Model
056-180

DESIGNED FOR EXERCISE IMAGING

- Allows variable patient positioning at any angle from supine to upright.
- Ergometer positions are easily adjusted vertically and horizontally to accommodate any patient physique and study orientation.
- Designed for use with all large field of view cameras and for oblique views.
- Wheel and floor lock design to avoid camera pedestal interference and to provide positive table rigidity.
- Contoured seat and back provide patient comfort and positive restraint. Eliminates unnatural reach and strain.
- Straps, hand grips, shoulder pads hold patient firmly in position.
- Table can be used with most commercially available ergometers.

FOR COMPLETE INFORMATION WRITE OR CALL—

Atomic Products Corporation

ATOMLAB DIVISION • ESTABLISHED 1949
P.O. BOX 657 CENTER MORICHES, NEW YORK 11934 USA
(516) 878-1074
TWX #510-228-0449

The Complete Stress System



For Any Camera

If you have a nuclear camera, we have the stress system for it. Our HI-LO Stress System allows you to position the pedal ergometer above or below table level so you can use any imaging — even large-field-of-view cameras — while continuously stressing the patient.

The HI-LO Stress System is complete. More than just a table and pedaling unit, our electronic control console features digital displays of Actual Workload, Heart Rate, Pedal Speed, and Elapsed Time. An optional heart rate control allows you to preset and maintain a patient's heart rate and workload.

The mobile control console provides maximum visibility to the operator, and the rugged table can be used for either anterior or posterior imaging. The HI-LO Table is adjustable for supine or seated patient positioning with a separate pedal speed indicator for the patient.

Get the complete story on the only complete Stress System available. Write for more information today.



edc/Medical Imaging
120 Stedman Street
Lowell, MA 01851
617-458-1456

MULTI LEVELS

RIA CONTROLS WITH UP TO 45 COMPONENTS

Up to 45 different components for each level from the same pool. Most components at two or three levels. No need for additional controls.

A full line of RIA Kits are also available, including Myoglobin, CPK-B, Estriol, PAP, Estradiol, HCG-B, Progesterone, HPL, Neo-T₄, Neo-TSH, Gentamicin, Tobramycin, T₃, T₄, TBG and TSH.

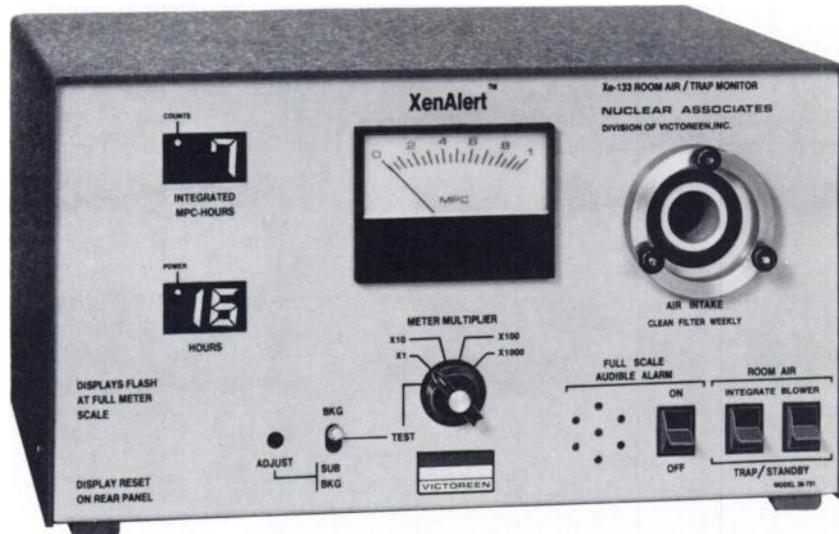
Free technical help. Fast order turnaround. Substantial savings on standing orders.



WAIT. All Xenon Gas Monitors are not created equal.

Before you invest in xenon monitoring equipment, discover the unique features of the new

XenAlert™ XENON-133 MONITOR



The ONLY wide-range unit that monitors ROOM AIR and GAS TRAP OUTPUT

- Reads directly in Maximum Permissible Concentration (MPC) units (or fractions thereof).
- Integrates and displays ¹³³Xe concentration in MPC-Hours.*
- Audio and visual indicators alert you BEFORE hazardous xenon concentrations are reached.

... AND MUCH MORE!



Details on request.
Ask for
Bulletin 266-B

*The Maximum Permissible Concentration of ¹³³Xe in a restricted area is 1×10^{-5} $\mu\text{Ci/ml}$ for a time period of 40 hours in any 7 consecutive days.

TM Nuclear Associates



NUCLEAR ASSOCIATES
Division of VICTOREEN, INC.

100 Voice Road • Carle Place, N.Y. 11514 • (516) 741-6360



Preserve your copies of *The Journal of NUCLEAR MEDICINE* for years of reference in a durable, custom-designed Library Case or Binder. These storage units will hold an entire 12-issue volume. The case supplied is an attractive blue with a gold-embossed spine. Each unit also includes a gold transfer so that the volume and year can be recorded.

CASE: Holds 12 issues/\$4.95 each
 three for \$14.00; six for \$24.00
 BINDER: Holds 12 issue/\$6.50 each
 four for \$25.00



TO: Jesse Jones Box Corp.
 P.O. Box 5120 Dept. JNM
 Philadelphia, PA 19141

I enclose my check or money order for \$_____ (Orders outside the U.S. add \$1.00 per file for postage and handling)

Please send me _____ *JOURNAL OF NUCLEAR MEDICINE*

_____ Files _____ Binders

Name _____

Address _____

City _____ State _____ Zip _____

Note: Satisfaction guaranteed or money refunded. Allow 5 weeks for delivery.



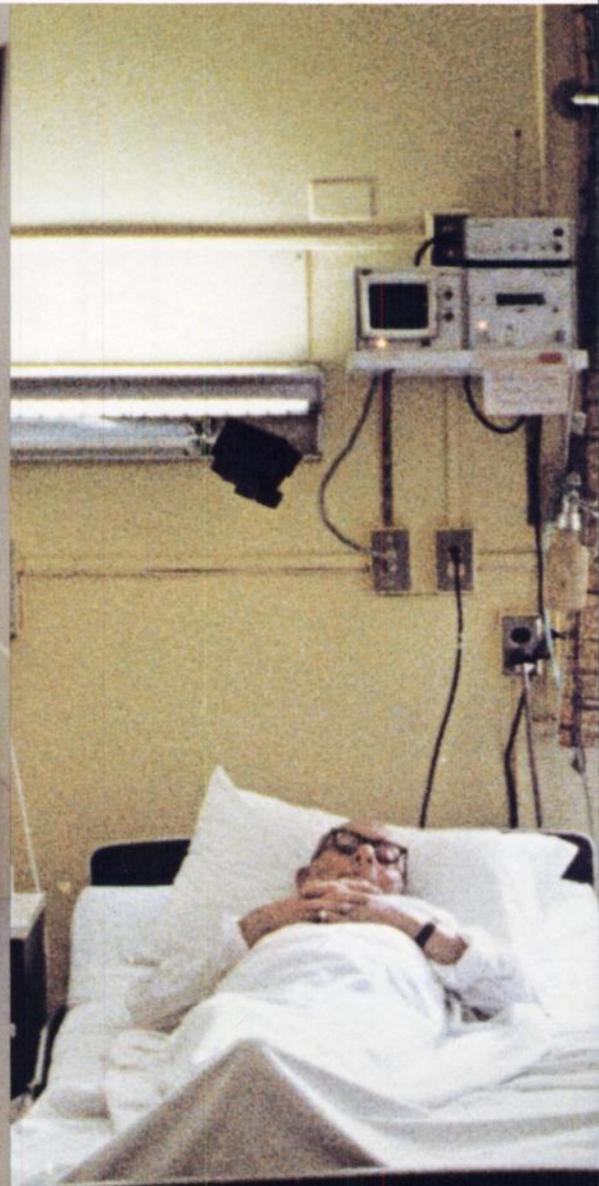
SIMPLIFIER

THE ESTRADIOL RIA KIT THAT'S A HIGHLY SIMPLIFIED PROCEDURE.

- ^{125}I -Estradiol tracer
-
- Double antibody separation
-
- Highly specific antibody
-
- Controls included
-
- Negligible cross-reactivity with E_1 and E_3
-
- Two hours incubation
-
- Eight weeks shelf life
-
- 100 μl sample size
-
- Low c.v.
-
- 20.0 to 2000 pg/ml sensitivity and range
-
- Economical



YOUR NUCLEAR MEDICINE DEPARTMENT'S NUCLEAR MEDICINE DEPARTMENT.



When we first introduced Dyna[®]Mo, many chose it for its excellent mobility. At 1.5 mph (2.4 km/hr), it brought a complete diagnostic capability to the CCU, or to the most remote parts of the hospital.

Today, DynaMo is succeeding because of its performance in any situation. DynaMo delivers incomparable resolution in the nuclear medicine department or out of it. Our integral Micro Z[™] Processor gives it automatic image correction and up to 15% improvement in resolution. With its own lightweight collimators and its unique five-motion detector, it's easy to operate, even in crowded situations. And DynaMo interfaces with any nuclear medicine computer.

Whether you choose it as a prime unit, an all-around second camera, or as a complete department unto itself, you'll find DynaMo stands alone.

For more information, call your Picker representative or write Picker Corporation, 12 Clintonville Road, Northford, CT 06472, or Picker International, 595 Miner Road, Highland Hts., OH 44143.

**THE
IMAGE
OF
VALUE.**

PICKER[®]
ONE OF THE CIT COMPANIES

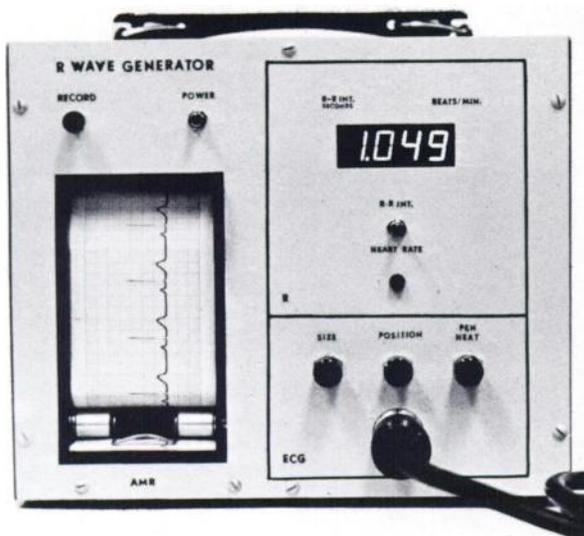


R WAVE GENERATOR

FOR
NUCLEAR CARDIOLOGY

BEHIND EVERY SQUARE WAVE THERE IS AN R WAVE

If all you need is a square wave to trigger the computer every time an R wave occurs then talk to us before you make a decision. We can provide you with a reliable system and save you money. Why buy unnecessary features that cost you extra? Our R wave generator provides only the features that you need.



INSTRUMENT HIGHLIGHTS

- Compact and inexpensive unit which records ECG on strip chart for permanent record.
- Four digit LED display to indicate R-R interval in seconds or heart rate in beats per minute. The R-R interval display is used to decide the gate tolerance. The heart rate display is helpful during stress testing.
- Produces sharp square wave output for R wave which can be used as a trigger for nuclear cardiology applications.

Delivery is 90 Days or less depending upon stock.

For price information call: (203) 877-1610 or write to:

Customer Service, AMR CORP., P. O. Box 3094 PPS, Milford, Conn. 06460

FINALLY ...

A chair for your Gamma Camera!

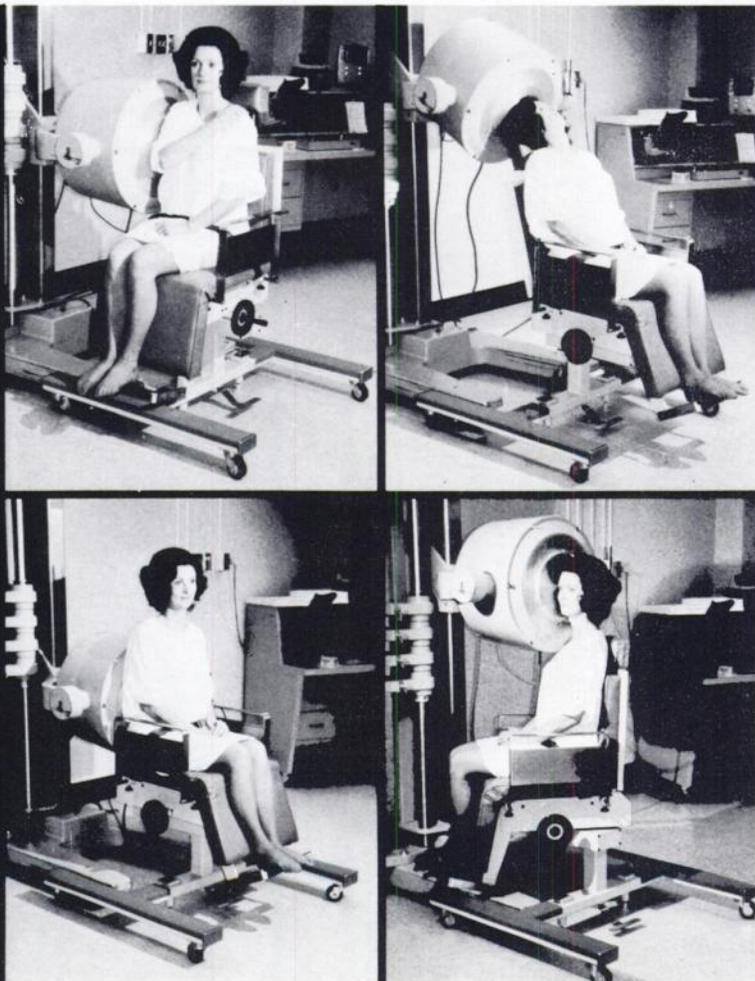
Now rapid, convenient positioning can be done on ambulatory patients for brain, lung or liver scans.

Fits all CAMERAS, requires no electrical connections, firmly locks in all positions, Patient securely held with seat belt.

Enhance your current Camera investment by reducing the time required for these predominant exams.

HUMANETICS, INC.

214-242-2164 Box 185 CARROLLTON, TEXAS 75006





**Small black spheres
number one
for the table.**

**Small brown spheres
number one
for diagnosis.**

Human Albumin Millimicrospheres labelled with Tc-99m appears to be an excellent agent for visualization of the Reticulo-Endothelial System and imaging of airways potency.

The answer lies in the particle size of the Millimicrospheres which reflects the strict quality control by Sorin Biomedica.

This ensures a reproducible particle size distribution where not less than 90% of the particles have a diameter between 0.3 and 0.8 μ .

Whether intravenously injected or nebulized, Millimicrospheres unequivocally represent the physiological behaviour.

NOT AVAILABLE IN U.S.A.

INTERNATIONAL CIS
IMMEUBLE P 3 "INTERNATIONAL"
2, RUE STEPHENSON
78181 ST. QUENTIN YVELINES CEDEX - FRANCE
Tel. (33) 1-0430009 - Telex. 698226



SUBSIDIARY OF: COMMISSARIAT A L'ENERGIE ATOMIQUE - FRANCE
LABOR. DES PRODUITS BIOMEDICAUX - DRIS
B.P. n.21 - 91190 GIF-SUR-YVETTE
Tel. 941.80.00 - Telex 692431

SORIN BIOMEDICA - ITALIA
GRUPPO RADIOCHIMICA
13040 SALUGGIA (VERCELLI)
Tel. (0161) 48155 - Telex 200064

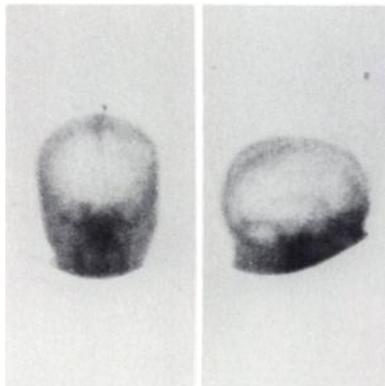
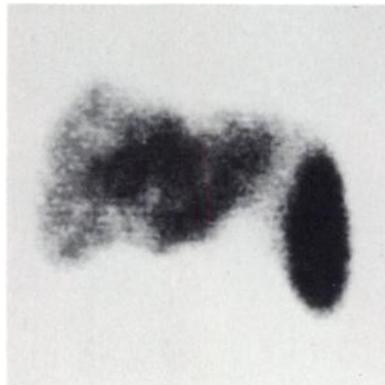


The UNION CARBIDE Hand-held Console . . . The Only Keyboard You Need.

- The UNION CARBIDE Large Field Gamma Camera hand-held console eliminates the need for a separate operator console.
- The hand-held console looks and works like a pocket calculator, with all controls for presetting study parameters and detector positioning.
- 15' flexible cable provides complete freedom of movement for the operator.
- Built-in digital display indicates time, count, or count rate at the touch of a button.
- Eliminates need for a second technologist.
- The hand control isn't the only thing we've done just right: even the feet of the camera are specially designed to accommodate wheelchairs, hospital beds and stretchers.

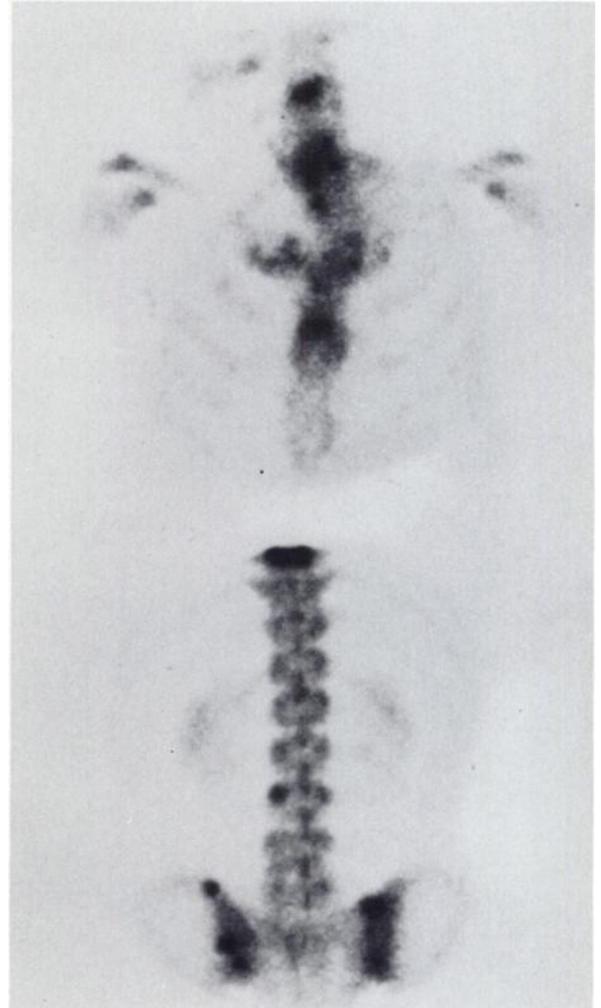
Ask UNION CARBIDE for the facts.

Union Carbide Medical Products are designed to enhance diagnosis and research, produce a return on investment, and create better health care at lower patient costs. Send today for descriptive literature. Or call for fast action.



Top – Hepatoma in 31-year-old female with 3.5 mCi Tc^{99m} Sulfur Colloid.

Bottom – Subdural hematoma on left, seen in 76-year-old male with 20 mCi D.T.P.A.



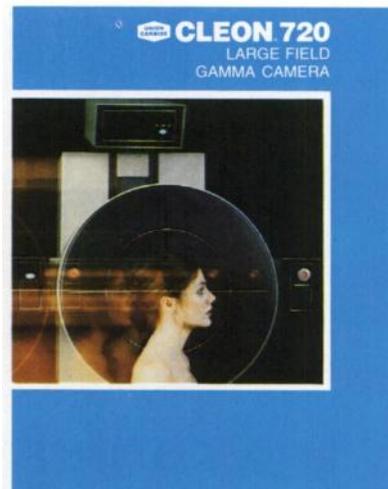
Above – Diffuse metastatic disease throughout torso and limbs.

Look Into Life . . .



Imaging Systems, Inc. Medical Products Division

333 Providence Highway
Norwood, Massachusetts 02062
Within area 617, call 769-5400.
Outside, call 1-800-225-9887.
TELEX 924-494





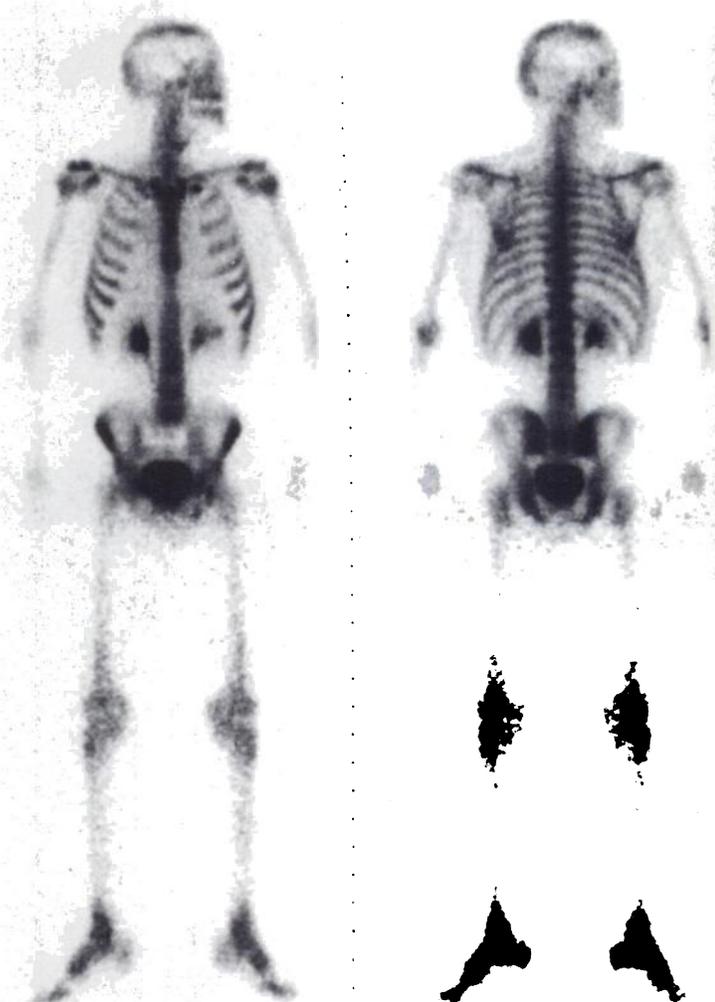
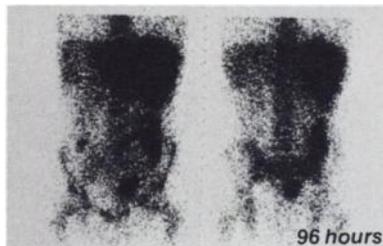
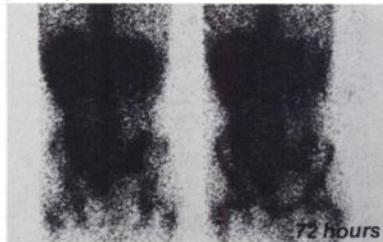
The UNION CARBIDE Whole Body Imager . . . Faster Patient Throughput.

- Capable of performing more than 18 whole body scans per 8 hour day; maximum scan speed is 20cm/minute.
- Dual detector heads provide simultaneous anterior/posterior focal tomographic views with no patient repositioning.
- Parabolic focus collimators allow superior resolution at depth without sacrificing sensitivity.
- Thick NaI crystals (.86") and dual pulse height analyzers make the system ideal for Gallium imaging.
- Built-in floppy diskette stores raw data.
- Image enhancement controls and 2x magnification are standard.
- Organ mode allows high-resolution static organ studies, two views at a time.
- Priced below comparable gamma camera systems.

Ask UNION CARBIDE for the facts.

Union Carbide Medical Products are designed to enhance diagnosis and research, produce a return on investment, and create better health care at lower patient costs. Send today for descriptive literature. Or call for fast action.

Below – Organ mode Gallium scans of a 30 year old male 72 hours post-injection (posterior and anterior views) and 96 hours post-injection with 5 mCi of Ga-67. Abnormal activity in the lower abdomen is seen clearly with two photo peaks.



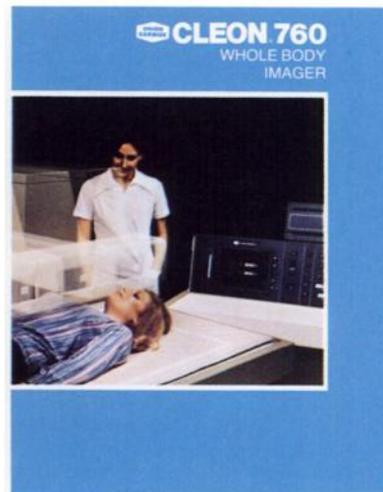
Above – Actual 13.5 to 1 minification of posterior and anterior whole body bone scan of a 45 year old male two hours post-injection with 20 mCi Technetium Tc^{99m} MDP. Diagnosis: normal.

Look Into Life . . .

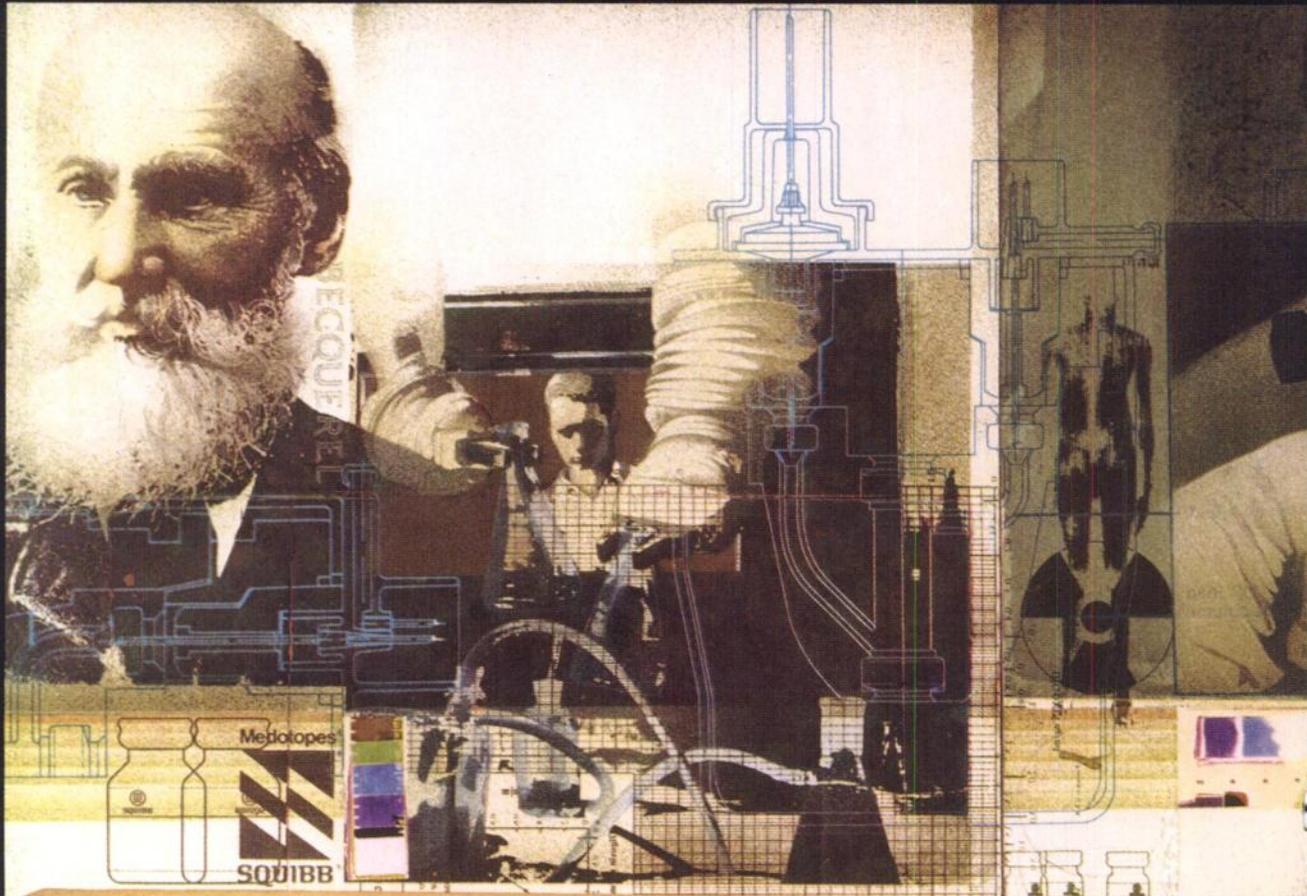


**Imaging Systems, Inc.
Medical Products Division**

333 Providence Highway
Norwood, Massachusetts 02062
Within area 617, call 769-5400.
Outside, call 1-800-225-9887.
TELEX 924-494



Over two decades of leadership in Nuclear Medicine



5 kits

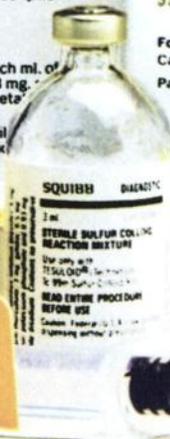
DIAGNOSTIC

TESULOID[®]

Technetium Tc 99m-Sulfur Colloid Kit

Caution: Federal (U.S.A.) law prohibits dispensing without prescription.
Package contains:

- 5 kits
- Each kit contains:
 - 1 vial (3 ml.) Sterile Sulfur Colloid Reaction Mixture. Each ml. of aqueous solution provides 4 mg. sodium thiosulfate, 3 mg. 8.5 mg. dibasic potassium phosphate and 0.93 mg. edetate disodium. Contains no preservative.
 - 1 UNIMATIC[®] disposable syringe (2 ml.) Syringe A-Steril Hydrochloric Acid Solution. Each ml. of aqueous solution provides 9 mg. hydrochloric acid.



5 kits

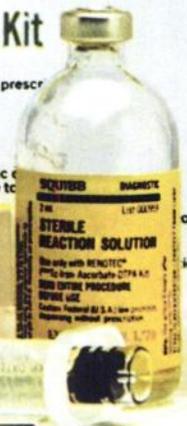
DIAGNOSTIC

RENOTEC[®]

^{99m}Tc-Iron-Ascorbate-DTPA Kit

For preparation of ^{99m}Tc-Iron-Ascorbate-DTPA
Caution: Federal (U.S.A.) law prohibits dispensing without prescription.

- Package contains:
- 5 kits
 - Each kit contains:
 - 1 vial (2 ml.) Sterile Reaction Solution. Each ml. of aqueous solution provides 5 mg. ferric chloride, 2.5 to 5 mg. ascorbic acid, and sodium hydroxide to adjust pH.



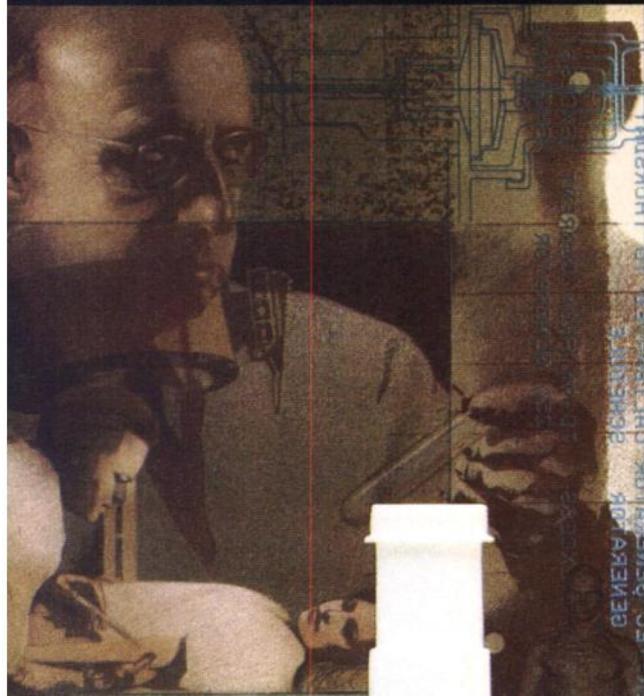
L66130M

TESULOID
Technetium Tc 99m-Sulfur Colloid Kit

Dependable performers make perfect combinations

Products designed to complement each other are calculated to produce a reliable, quality end product. When the eluate

obtained from Minitec[®] (Technetium Tc 99m) Generator is used in Squibb *in vivo* kits, the resultant preparations yield excellent images.



For Non-Invasive Dynamic Heart Studies

DYMAX-MB

A COMPUTERIZED MOBILE GAMMA CAMERA

Provides the Technique For Today – and Tomorrow

Results obtained using the DYMAX-MB Mobile Camera with its powerful minicomputer data processor, clearly demonstrate the advantages of radiocardiology as a diagnostic technique.

DYMAX-MB is compact, fully mobile and simple to operate. The camera produces studies with excellent resolution and uniformity at both low and high countrates, while the self-contained processor provides instant clinical analysis of the data. Among the heart functions which can be studied "live" are wall motion, ejection fraction, cardiac output, interventricular shunts and other parameters of major importance.

Analytical procedures are speeded by automatic repeat of previously established protocols. On-the-spot analysis enables the attending physician to immediately evaluate results, eliminating the delays of batch processing at a central installation, thus maximising the efficacy of the DYMAX-MB.

Check for yourself the significant advantages of this highly efficient clinical tool.

You can :

- Spare your patient the trauma of catheterization.
- Complete the diagnosis at the patient's bed-side, sparing him exhausting movement to overburdened laboratories.
- Receive pre-processed data for more rapid and detailed interpretation than was possible with earlier techniques.

Until you examine the performance of this outstanding unit, you haven't heard the last word. Call us or write for more information or demonstration.

The **elscint** commitment to excellence

U.S.A. ELSCLNT INC. 138-160 Johnson Avenue, Hackensack, New Jersey 07609, Telephone : 201-487-5885 ; Telex : 135382.

Germany : Elscint GmbH, Freudenbergstrasse 27, 62 Wiesbaden-Schierstein, Tel.: (06121)2786.

U.K. : Elscint (GB) Ltd. 5 Priestley Way, Crawley, Sussex RH10 2DW, Tel. : (0293)21285/6/7.

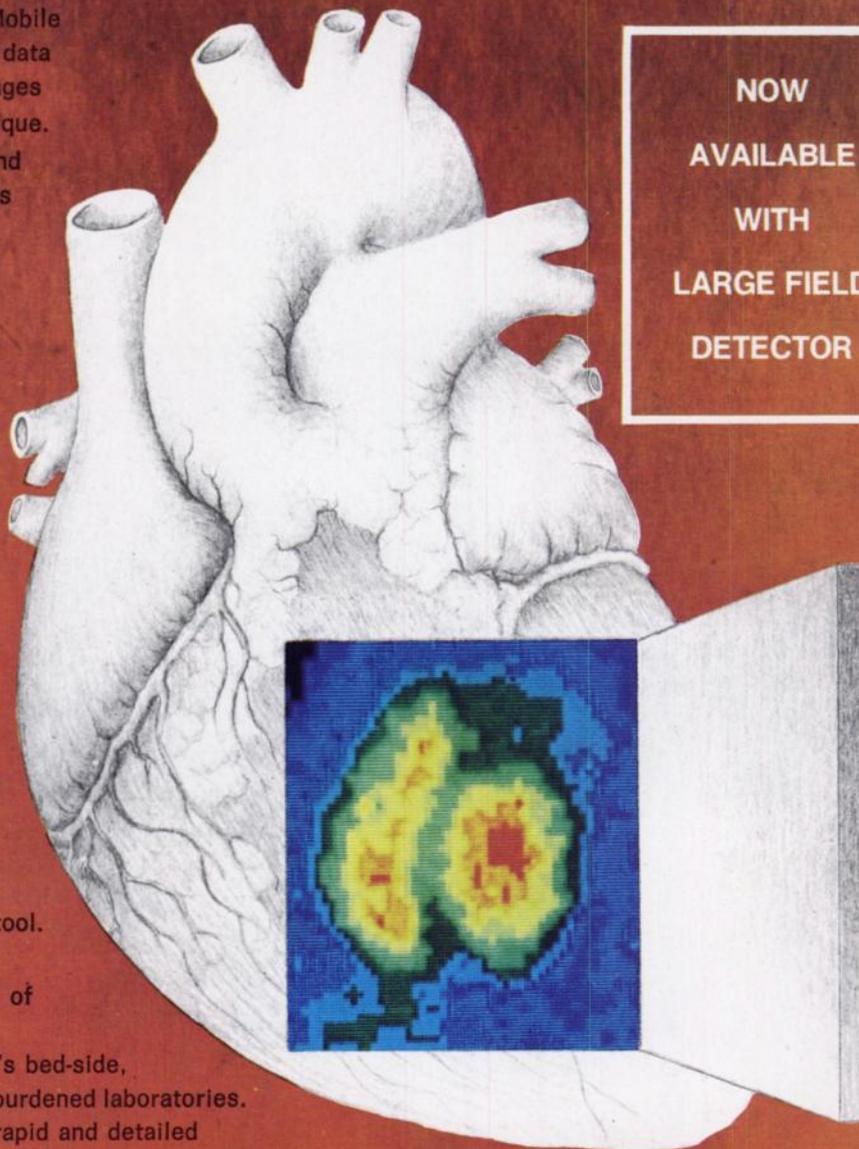
Belgium : Elscint N.V./S.A. Rue du Saphir 31, B-1040 Brussels, Tel. : (02)735.46.05.-735.48.13.

Holland : Elscint B.V. Raadhuislaan 12B, Maarn, Tel. : 03432-2987.

Brazil : Rua Dos Moras 576 Alto De Pinheiros 0534-Sao Paulo, Tel. : 210-8906.

Israel : Elscint Ltd. P.O.Box 5258 Haifa, Tel. : 04-522516, 04-510692.

In other countries : Write to Elscint International Sales Service Div., Elscint - I.S.S.D. Annandale, North End Road, Golders Green - London NW 11 7QY, Tel. : (01)458-7323.



NOW
AVAILABLE
WITH
LARGE FIELD
DETECTOR



The Mallinckrodt Ultra-TechneKow[®] FM (Technetium Tc 99m) Generator. Designed with people in mind.



The **Ultra-TechneKow FM** Generator was designed to bring you the best balance between safety, ease of operation and dependable yield efficiency. Over 15 years of experience and evolutionary progress is reflected in this state-of-the-art generator system.

Easier to lift and move.

Significant weight reductions have been made by changing the internal column shield design. Weight is down 44% on small units and 24% on large units. A large handle is on top for easier lifting and better maneuverability.

Improved shielding.

The auxiliary shield provides additional protection from radiation on all sides and the top. Radiation profile information is available from your Mallinckrodt representative.

Dependable yield efficiency.

While fluctuations in yield efficiency can be expected, the **Ultra-TechneKow FM** Generator is noted for producing consistently high yields of technetium Tc 99m.

Backed by the Mallinckrodt distribution and service team.

In a recent independent survey of 400 nuclear medicine departments, Mallinckrodt ranked first in delivery and service.* Because of this record of being on time and on hand when you need special assistance, we believe you can count on Mallinckrodt having the best and most complete technetium delivery "system" in the world.

*Data on file, Mallinckrodt, Inc.

People: the most important part of our system.

Ultra-TechneKow[®] FM (Technetium Tc 99m) Generator



The IMAGE MAKERS

The Mallinckrodt Ultra-TechneKow[®] FM (Technetium Tc 99m) Generator. Designed with people in mind.

Ultra-TechneKow[®] FM (Technetium Tc-99m Generator) For the Production of Sodium Pertechnetate Tc 99m

DESCRIPTION

The **Ultra-TechneKow** FM Generator is prepared with fission-produced molybdenum-99. This generator provides a closed system for the production of sterile metastable technetium-99m, which is produced by the decay of molybdenum-99. Sterile, pyrogen-free isotonic solutions of Sodium Pertechnetate Tc 99m can be obtained conveniently by periodic aseptic elution of the generators. These solutions should be crystal clear.

The generator consists of a sealed glass chamber containing specially processed alumina. This treated alumina has a high absorption capacity for molybdenum-99 and a low affinity for technetium-99m. As a result, elution of the generator yields a solution of technetium-99m containing negligible amounts of molybdenum-99.

ACTIONS

The pertechnetate ion distributes in the body similarly to the iodide ion but is not organified when trapped in the thyroid gland. Pertechnetate tends to accumulate in intracranial lesions with excessive neovascularity or an altered blood-brain barrier. It also concentrates in thyroid gland, salivary glands, stomach and choroid plexus. After intravascular administration it remains in the circulatory system for sufficient time to permit blood pool, organ perfusions, and major vessel studies. It gradually equilibrates with the extracellular space. A fraction is promptly excreted via the kidneys.

INDICATIONS

Sodium pertechnetate Tc-99m is used for brain imaging, thyroid imaging, salivary gland imaging, placenta localization and blood pool imaging.

CONTRAINDICATIONS

None.

WARNINGS

This radiopharmaceutical should not be administered to patients who are pregnant or during lactation unless the information to be gained outweighs the potential hazards.

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.

Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and handling of radionuclides produced by nuclear reactor or particle accelerator and whose experience and training have been approved by the appropriate government agency authorized to license the use of radionuclides.

PRECAUTIONS

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

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

ADVERSE REACTIONS

None.

DOSAGE AND ADMINISTRATION

Sodium pertechnetate Tc-99m is usually administered by intravascular injection but can be given orally. The dosage employed varies with each diagnostic procedure.

The suggested dose range employed for various diagnostic indications in the average patient (70 kg) is:

brain imaging:	10 to 20 mCi
thyroid gland imaging:	1 to 10 mCi
salivary gland imaging:	1 to 5 mCi
placenta localization:	1 to 3 mCi
blood pool imaging:	10 to 20 mCi

NOTE: Up to 1 gram of reagent grade potassium perchlorate in a suitable base or capsule may be given orally prior to administration of sodium pertechnetate Tc-99m injection for brain imaging, placenta localization and blood pool imaging.

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



HOW SUPPLIED

The **Ultra-TechneKow** FM (Technetium Tc 99m) Generators contain the following amount of molybdenum-99 at the time of calibration stated on the label.

Catalog Number	
100	0.25 curies
101	0.50 curies
106	0.75 curies
102	1.0 curies
103	1.5 curies
104	2.0 curies
105	2.5 curies
107	3.0 curies

Each generator is supplied with the following components for the elution of the generator.

- 6—Sterile, graduated, evacuated collecting vials
- 6—Sterile Luer-Lock needles with plastic covers
- 6—Pressure-sensitive "Caution—Radioactive Material" collecting vial labels
- 6—Pressure-sensitive radioassay data labels for lead dispensing shield

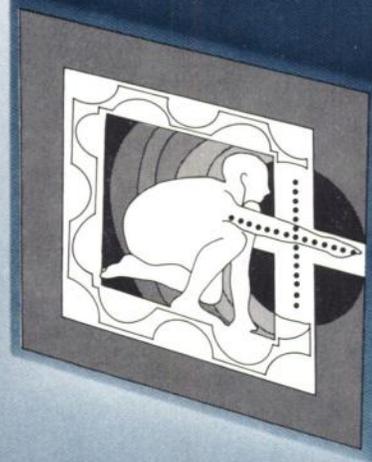
EVACUATED COLLECTING VIALS. Collecting vials are available on request in 5, 10, 20 and 30 milliliter sizes.

Mallinckrodt, Inc.
P.O. Box 5840
St. Louis, MO 63134

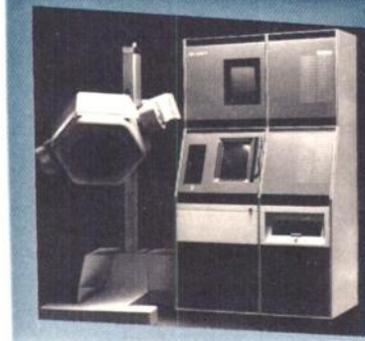


RADIOPHARMACEUTICALS

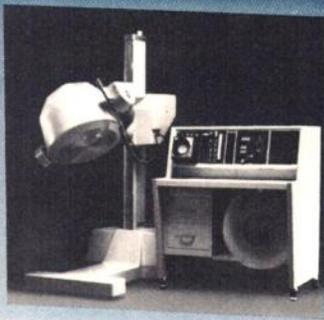
SEARLE



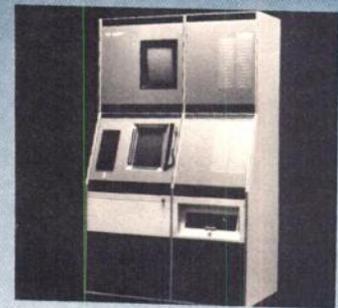
A HISTORY OF PERFORMANCE III



LFOV Standard



P/G V Basic

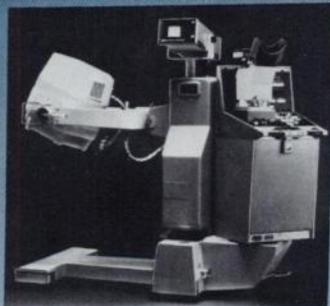


Scintview

A COMMITMENT TO THE FUTURE



Pho/Con



LEM



Accessories (Micro-Dot)

With 3,900 Gamma cameras presently installed throughout the world, Searle recognizes its obligation to the nuclear medicine community

Since the very inception of nuclear medicine, Searle has provided exceptional equipment, technology and the professional services required to make nuclear imaging a reality.

What of the future? As the acknowledged leader in nuclear imaging instrumentation, Searle Radiographics is keenly aware of its responsibility to you. Inventive product ideas, engineering, testing, evaluation, production, and the most important after purchase feature, excellent service, are evidence of our continued commitment to the future.

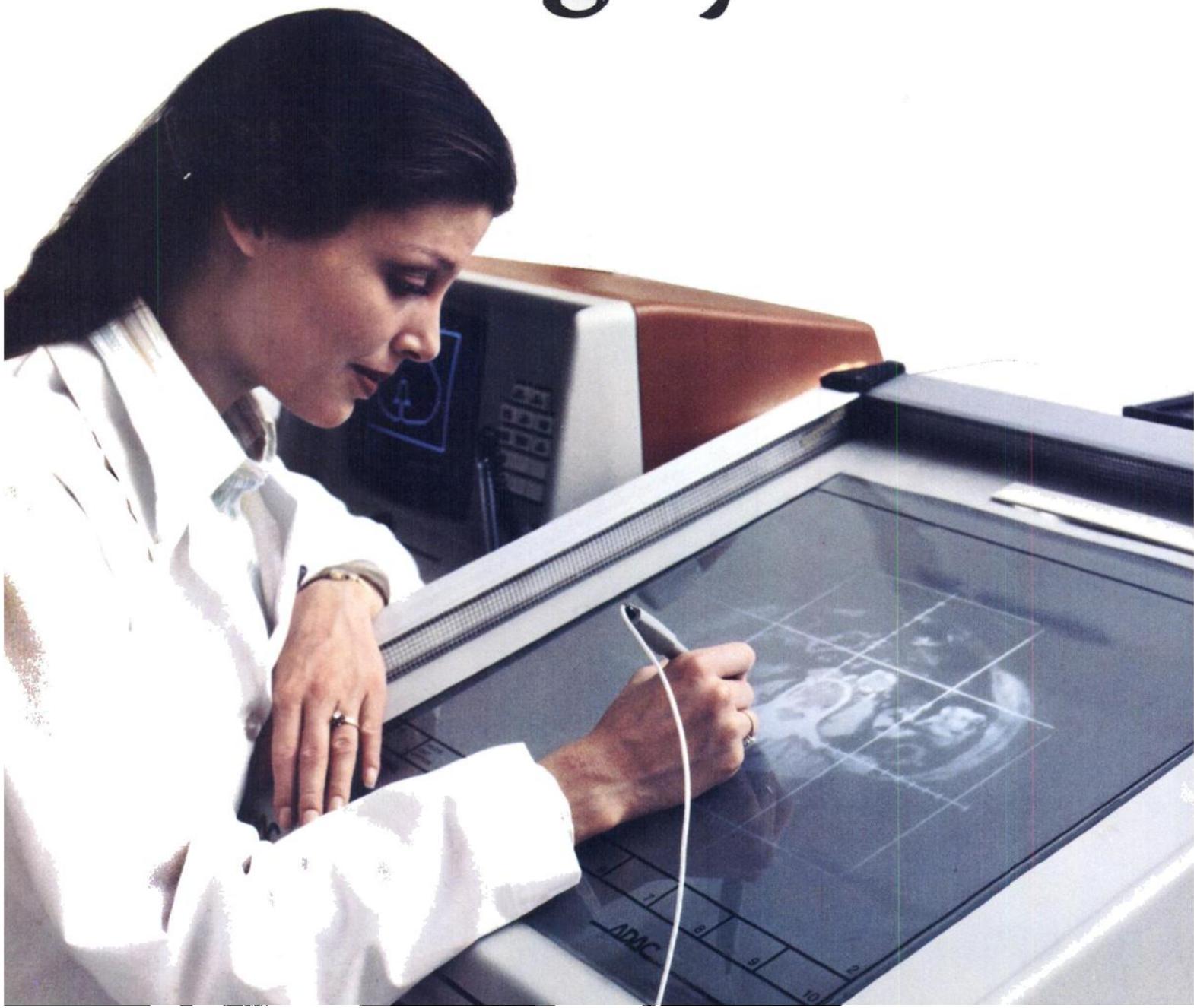
We are committed to maintaining our position of leadership in the dynamic, ever-changing science of nuclear medicine by evolving ever more sensitive, high resolution instruments and systems (Cardiac Analysis Package) capable of early disease detection and analysis. You and the patients you care for deserve no less. Searle will continue to be the leader, providing only the finest in imaging equipment and services. That is our pledge to the medical community for the 1980's.

SEARLE

Searle Radiographics
Unit of Searle Medical Products
2000 Nuclear Drive
Des Plaines, IL 60018
312/635-3100

Now from the leader in nuclear medicine computer systems:

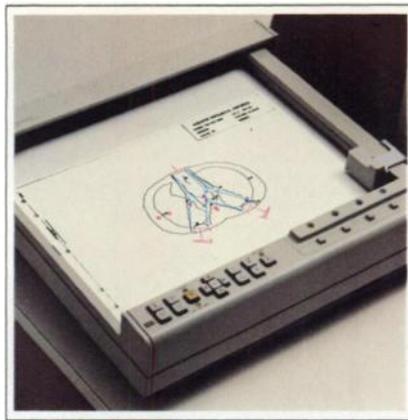
The ADAC Radiation Therapy Planning System.



This remarkable new system combines innovative ADAC technology and clinically-proven software by the Northwest Medical Physics Center—plus lower cost.

Only ADAC provides all these features:

- A complete software package developed by the Northwest Medical Physics Center for use in their treatment planning network of 26 hospitals—includes external beam, irregular field and brachytherapy calculations.
- Simplified operation in plain English and a “menu” format makes the system easy to use without learning a special computer language.
- Printed radiotherapy machine settings and field descriptions allow verification of hand calculations, and are provided with each plan for inclusion in the patient’s chart.



Exclusive 4-color plotter provides easy-to-read dose distributions.

- In cases not requiring a complete dose calculation, an external beam dose summary is prepared which clearly defines the treatment parameters.
- Exclusive economical add-on version can be combined with an existing ADAC nuclear medicine computer in the same or a remote location.
- Built-in expansion capability and continuing software support guarantees you state-of-the-art technology for years to come.

- Exclusive video display system uses shades of gray for precise visualization of dose distribution on the TV monitor. As a result, plan parameters can be quickly visualized and edited to facilitate selection of the optimal plan.

- Nationwide service network assures you of prompt, expert attention.

- In-depth training provided on site with every system.

To arrange for an actual demonstration of the ADAC Radiation Therapy Planning System at a convenient location near you, please write or call collect.

ADAC Laboratories,
255 San Geronimo Way,
Sunnyvale, CA 94086.
(408) 736-1101.



Opposite page: Exclusive built-in projection system allows you to use images from any CT scanner as input to the system.



In the recent months, Eastman Kodak Company has introduced many products, ideas, improvements, and services that can be used by those who work in the world of medicine. They add up to a restatement of our commitment to your profession. Here's a recap, in case you missed any of the news the first time.

7. New, improved KODAK Instant Color Film for sharper, more brilliant color, and faster development time.

8. KODAK RP X-OMAT Processor, Model M8. Called "Kodak's smartest processor" because it monitors itself while processing radiographs in 90 seconds.

9. KODAK LANEX Fine Screen. A logical choice for extremity work, providing excellent detail, but with the increased speed of rare earth technology.

10. 14th volume of the Encyclopedia of Practical Photography. A useful addition to your medical library.

11. KODAK EKTAGRAPHIC Slide Projector, Model B-2AR, with automatic voltage selection, convenient for use around the world.

12. New KODAK EKTAGRAPHIC AudioViewer with sound. Permits "hands-off" training for in-service and voluntary effort programs.



NEWS

FROM

1. KODAK Ortho H Film. Companion to Ortho G Film, it combines with KODAK LANEX Regular Screens to provide a speed four times faster than KODAK X-OMAT RP Film and high-speed calcium tungstate screens.

2. KODAK MIN-R Cassette, now available in 18 x 24 cm and 24 x 30 cm sizes to facilitate mammographic studies.



3. KODAK RP X-OMAT Processor, Model M7B. Economical, 150-second processing with ambient water wash.

4. KODAK EKTAGRAPHIC 400 Film for color photography. Now make training and record slides without special lighting.

5. KODAK RP X-OMAT Fixer and Replenisher. Improved to reduce processor maintenance time.

6. KODAK Instant Film Back to fit any 4 x 5-in. camera with a GRAFLOK® Back. Provides instant color prints for study and reference. *Trademark of Graflex, Inc.

13. KODAK ROYALPRINT Processor, Model 417, for 55-second processing of black-and-white prints.

14. KODAK Technical Pan Film (ESTAR-AH Base) SO-115, an excellent choice for photomicrography.

15. Replenishment Consumption Analysis—an analysis provided by your Kodak Technical Sales Representative to help you get the most out of your processing chemicals.

16. KODAK Automixer. Automatically mixes chemicals and replenishes film processors, eliminating a time-consuming chore.

17. KODAK RP X-OMAT Developer Replenisher and Fixer and Replenisher, now packaged for use with the KODAK Automixer.

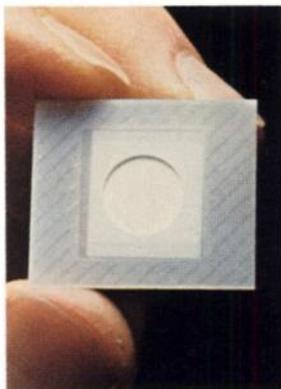
18. KODAK RP X-OMAT Developer Replenisher, improved for low-temperature storage and transport stability.



19. KODAK IMT Microimage Terminals that employ micro-computer intelligence to speed access to master patient indexes and accounts receivable records stored on microfilm.

20. KODAK EKTACHEM GLU/BUN Analyzer. For accurate glucose and blood urea nitrogen analysis using new technology. You'll be hearing more about this.

21. RECORDAK Portable Microfilmer, Model RP-1, and RECORDAK Continuous Forms Accessory, Model FMT. Allows hospitals or clinics to copy 5 x 6-in. trace records onto 16 mm rolls of microfilm.



22. Color-coded KODAK X-OMATIC Cassettes. To simplify cassette selection in extremity radiography.

23. KODAK EKTACOLOR FilterFinder Kit, for quickly identifying proper photographic filters required for excellent color prints from negatives.

24. KODAK Chemical Recovery Cartridge, Junior 1-P, a small-size (3½-gallon) silver-recovery cartridge. It can recover valuable silver from virtually all types of processors.

29. KODAK LANEX Screens and KODAK X-OMATIC Intensifying Screens in new sizes to fit virtually all automatic film-handling equipment.

30. KODAK Gray Tone Imaging Film for CRT Imaging.

31. KODAK EKTAPRINT Copier-Duplicator, providing high quality and high speed, a vital combination for meeting volume copy needs.

32. KODAK Safelight Filter Type GBX, safe for handling most blue- and green-sensitive films while providing a high level of darkroom illumination.

33-34. Two films for nuclear medicine, KODAK NMB Film (blue base) and KODAK NMC Film (clear base). Available in notched sizes to fit daylight-loading equipment.



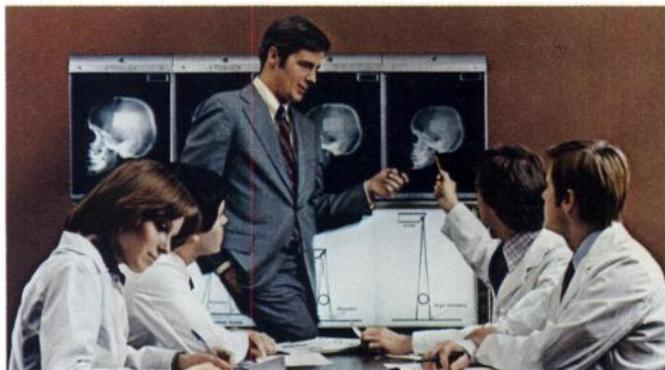
35. EASTMAN Organic Chemicals Catalog No. 50 (JJ-1), listing more than 4,000 chemicals.

36. EASTMAN Products for Electron Microscopy Catalog (JJ-284), complete with products, bibliographies for fixatives and stains, and a stain specification table.



25. Management Challenge—a one-day seminar on management techniques for managers of radiology departments.

26. Radiographic Image Analysis—a two-day seminar on radiographic imaging for radiologists and residents.



27. Q.C. Steps Program. A radiology department quality-control training program conducted at the Kodak Marketing Education Center in Rochester.

28. Management of Radiographic Environments Program (M.O.R.E.). A radiology department training program to provide the techniques for improving department efficiency, radiographic quality, and cost effectiveness.

37. Directory of KODAK Products and Services for Life Sciences (LS-1). Updated with a convenient listing to help you locate Kodak medically related products and services.

38. KODAK Medical X-ray Products Catalog (M5-15). Thirty-two pages of products for your imaging needs.

39-40. Four more issues of "Medical Radiography and Photography," published by Eastman Kodak Company for the medical profession for 54 years. For more information about Kodak products, publications, or programs, ask your Kodak Technical Sales Representative, or write: Eastman Kodak Company, Health Sciences Markets Division, Dept. 740B, Rochester, New York 14650.

© Eastman Kodak Company, 1979



TURNING ENERGY INTO IMAGES



RADIOGRAPHY • COMPUTED TOMOGRAPHY
ULTRASOUND • NUCLEAR MEDICINE • THERMOGRAPHY

**TWO NEW KITS FROM
INTERNATIONAL CIS
THE WIDE RANGE OF QUALITY RIA PRODUCTS
FROM INTERNATIONAL CIS IS NOW FURTHER
EXTENDED BY NEW KITS FOR**

FERRITIN
TRYPSIN

FERRITIN

for determination of total iron status

TRYPSIN

for investigation of pancreatic function and diagnosis of pancreatitis



for further details contact :

INTERNATIONAL CIS / 2, rue Stephenson / 78181 St Quentin - Yvelines Cedex France / Tél. (33) (1) 043.00.09 / Telex 698226 F

CIS RADIOPHARMACEUTICALS Inc. / 5, de Angelo Drive / Bedford-Mass 01730 - USA / Tél. (617) 275.7120 / Telex 0949465

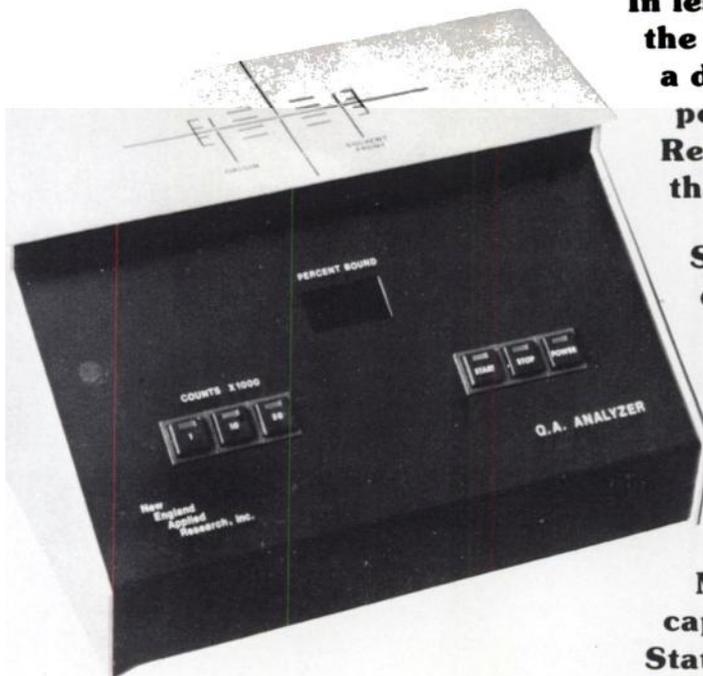
EUROTOPE SERVICES Ltd. / Rex House - 354 Ballards Lane / North Finchley - London - N 12 OEG GB / Tel. (01) 446.4405 / Telex 23310

ISOTOPEN DIENST WEST / Einsteinstrasse 9-11/ 6072 - Dreieich bei Frankfurt-Main Germany / Tel. (06103) 3857 / Telex 4185312

Not presently available in USA, awaiting FDA approval.

DIRECT READOUT RADIOPHARMACEUTICAL ANALYZER

EVALUATES EFFICIENCY OF RADIOPHARMACEUTICAL TAGGING



In less than 30 seconds the QA analyzer provides a direct readout of percent bound. Repeatability is better than $\pm 3\%$.

Simply position a developed chromatographic test strip on the stainless steel positioner, select the appropriate counting range and depress the start button.

Maximum count rate capability is 300,000 counts/min. Statistical accuracy is:
 $\pm 3\%$ @ 1,000 counts
 $\pm 1\%$ @ 10,000 counts
 $\pm 0.5\%$ @ 50,000 counts

- ◆ FAST AND ACCURATE
- ◆ SIMPLE TO OPERATE
- ◆ NO MOVING PARTS

**New
England
Applied
Research, inc.**

15 TECH CIRCLE
NATICK, MA 01760
(617) 655-6998

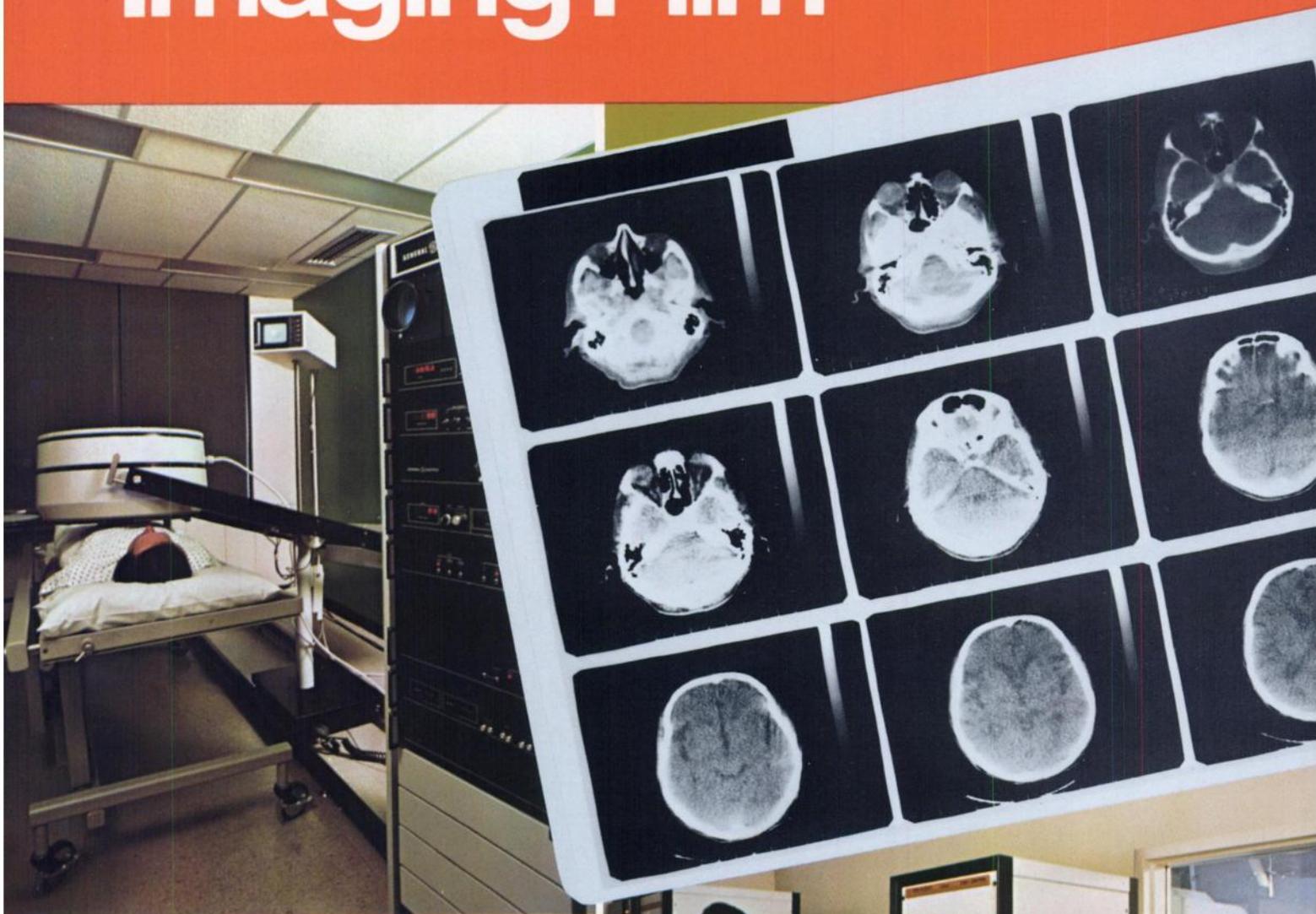
Complete, clip and mail coupon for details

PLEASE SEND MORE INFORMATION ON THE QA ANALYZER

NAME _____ TITLE _____
HOSPITAL _____
DEPARTMENT _____
ADDRESS _____
CITY _____ STATE _____
PHONE _____ ZIP _____

J N M

SCOPIX[®] CR3 Universal CRT Imaging Film



The one film for all your computed tomography, ultra-sound and nuclear medicine imaging needs...

Up to now, if you wanted good CRT image recording from computed tomography, ultra-sound and nuclear medicine equipment, you may have used several different "special purpose" imaging films.

We started with a conviction that a more convenient universal emulsion film was desirable and possible. The result is Agfa-Gevaert's new SCOPIX CR3 Universal CRT Imaging Film . . . the one film that does it all!

It is a film matched to the spectral emission of white, blue and green phosphors used for CRT displays and video monitors.

Matched Response To All CRT Displays.

The broad spectral sensitivity of SCOPIX CR3 Film ensures accurate and detailed recording from greyscale CRT and video monitors which use white, blue or green phosphors in their display tubes. It is the "blindness" to green phosphors which causes other films to exhibit higher grain and less definition.

SCOPIX CR3 Film is a single-coated, orthochromatic, medium speed film of relatively high contrast, which gives outstanding recording of CT scan, ultra-sound and nuclear video images.

Sharper Image

Its higher speed allows CRT monitor intensity to be decreased, thus reducing the "halo" effect on the video screen and improving image definition.

SCOPIX CR3 Film is single-coated on GEVAR polyester base, with anti-halation layer. This combination enhances image detail and definition by preventing image parallax. It is suitable for all RP and manual film processing.

With SCOPIX CR3 film . . . you purchase fewer film types and simplify film inventory; get improved and consistent quality and economy because one film does it all!

For additional information, contact your nearest Agfa-Gevaert Rex Representative or call 914-682-5650.

Image Quality and Support Second to None.

Agfa-Gevaert Rex offers a complete line of superior, sensitometrically dependable X-ray films. All have the finest definition and image quality to help make precise diagnoses. And all offer appropriate speed for the desired technique. Whether it's general purpose radiology, or special procedures such as cinefluorography, angiography or mammography, Agfa-Gevaert has the film to meet your diagnostic needs.



**SCOPIX CR3
Film
The one film
that does it all!**

Photos courtesy Mt. Sinai Hospital, N.Y.

AGFA-GEVAERT REX, INC.

A Subsidiary of the Agfa-Gevaert Group, the second largest photo products manufacturer in the world
Headquarters: White Plains, NY 10604 / Tel: 914-682-5650 ■ In Canada contact: Photo Importing Agencies, Ltd. / Exclusive Distributor

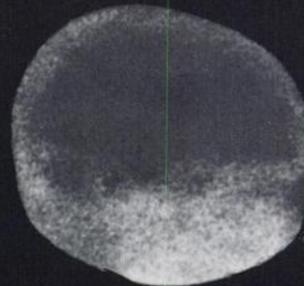
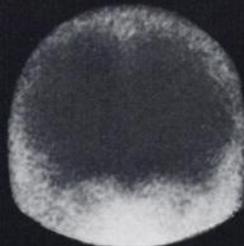
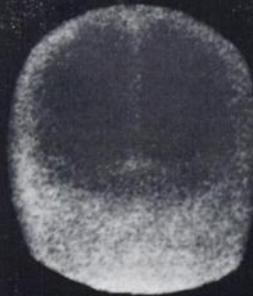
SCOPE WRITER

L

POST R R

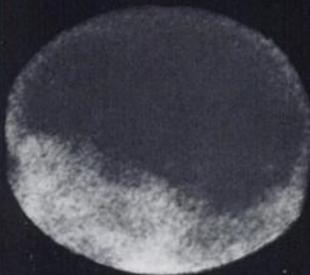
ANT 300K L P

RIGHT LAT A



A

LEFT LAT 300K P



*For Permanent Photo-Identification
at the Time of Study*

- Full Alpha/Numerics
- Direct Measurement Scale
- Simple Installation/Simple Operations
- Works With All Scintiphoto Systems

FOR PRICES AND TECHNICAL INFORMATION WRITE TO:



Instrumentation Camera Inc.

239 South Fehr Way, Bay Shore, New York 11706 ■ 516-242-2727

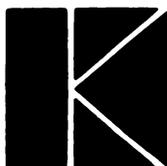
P. WICK
 516-242-2727
 S-17-76

Nuclear Medicine Modular Systems

Kewaunee Nuclear Medicine Modular Systems consist of lead shielded modules specifically designed with a "Work-Flow" pattern for Receiving, Holding and Storage, Reagent Preparation, Inventory and Dispensing of Radiopharmaceuticals and Decay Storage.



The Kewaunee design offers a complete Radiopharmacy Systems Concept for Nuclear Medicine Departments. Lead shielding within the system provides for personnel safety from radiation. Maximum efficiency is obtained through the "Work-Flow" pattern concept.



kewaunee

KEWAUNEE SCIENTIFIC EQUIPMENT CORP.
 Special Products Division
 Lockhart, Texas 78644
 Phone: 512/398-5294

- Please send literature
- Please have representative call.

Name _____ Title _____

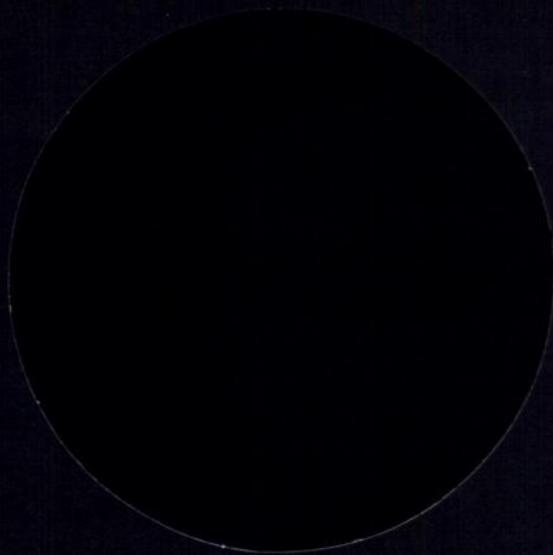
Organization _____

Address _____

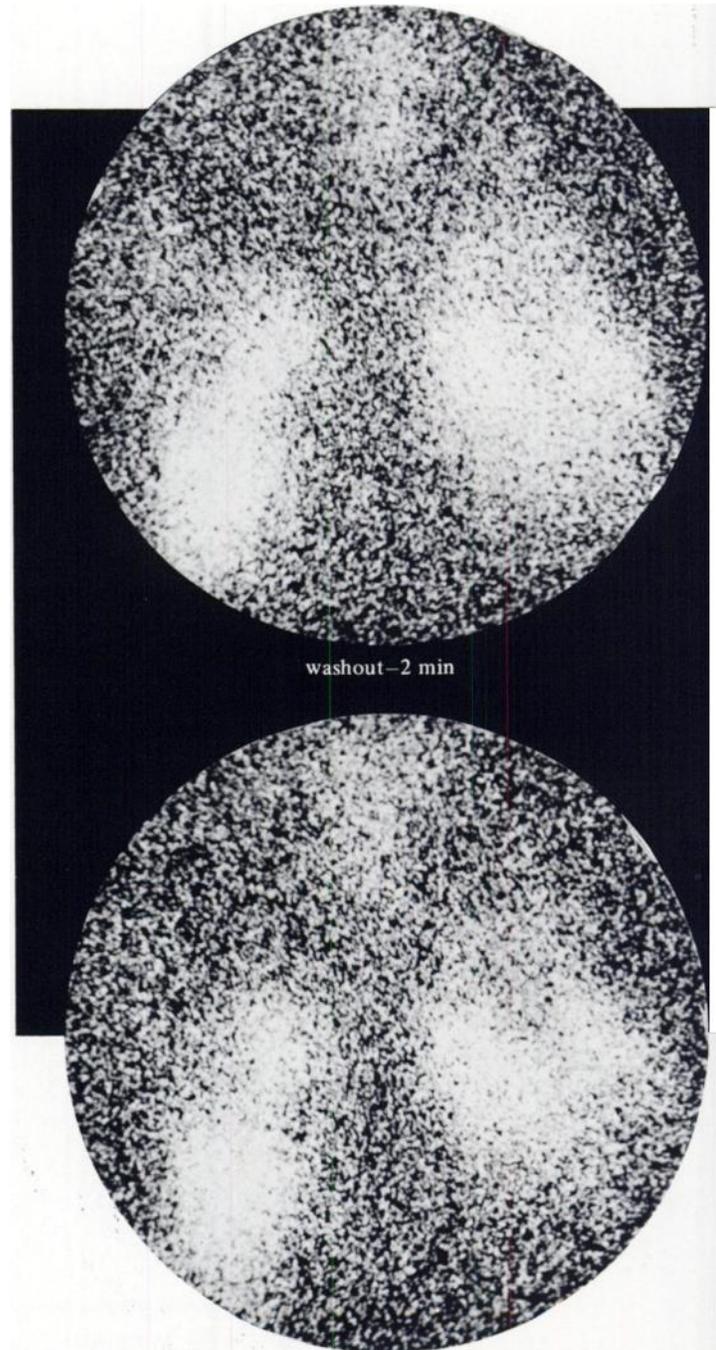
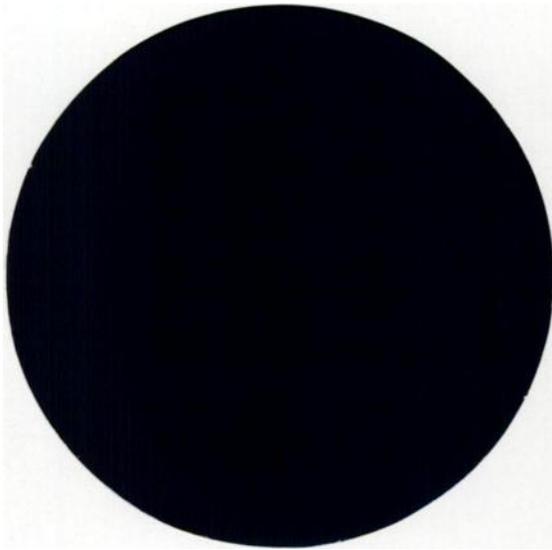
City _____ State _____ Zip _____

Phone _____

If you ordered
only a
perfusion lung scan
on this
patient...



..you could have missed
the diagnosis.



washout-3 min

The new definition of "lung scan"

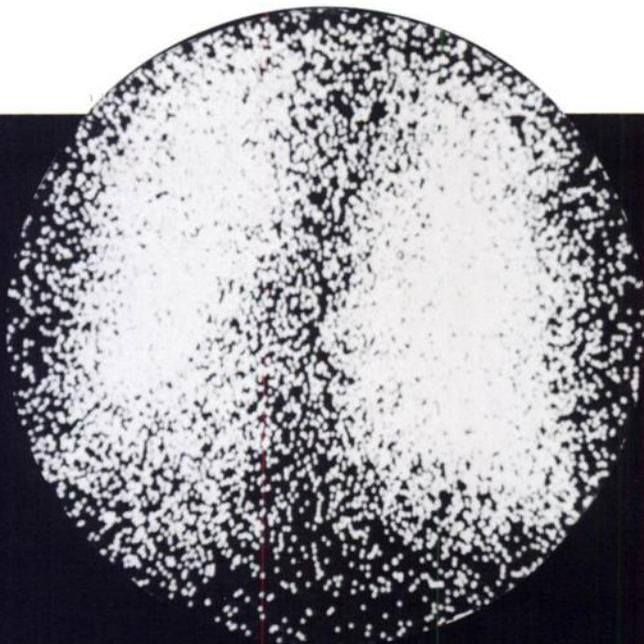
Ventilation+Perfusion

(SPECIFICITY)

Xenon-133 ventilation lung imaging reliably increases the specificity of the perfusion study by demonstrating regions of abnormal perfusion—normal ventilation (strongly suggesting PE) or of abnormal perfusion—abnormal ventilation (COPD, effusion or infiltrate).

(SENSITIVITY)

Perfusion lung imaging is recognized as the most sensitive noninvasive means of detecting pulmonary embolism (PE). Almost every patient with PE will have an abnormal study—while a normal study virtually rules out PE. But perfusion defects are nonspecific, since both vascular disorders, such as PE, and parenchymal disease or effusion alter pulmonary perfusion.



initial breath



posterior

36-year-old female, 7 years oral contraceptive use, presented with 10-day history of increasing shortness of breath, dyspnea and nonproductive cough. No history of hemoptysis, fever or thrombophlebitis. Bilateral wheezes and rhonchi. Chest X-ray normal. Sent to nuclear medicine with suspected pulmonary embolism. Perfusion lung images showed multiple peripheral defects, many concave and wedge-shaped. The ventilation study showed severe bilateral air trapping, particularly lower lobes, corresponding in distribution to perfusion defects. Studies compatible with alpha-1-antitrypsin deficiency, confirmed by laboratory tests.

For convenient, safe ventilation imaging

Xenon Xe 133
Gas (CALIDOSE)
Dispensing System

For high-quality perfusion lung imaging

PULMOLITE™
Technetium Tc 99m
Aggregated Albumin Kit

NEN New England Nuclear®

Please see following page for full prescribing information.

Xenon Xe 133 Gas[†]

DESCRIPTION: Xenon Xe 133 for diagnostic use is available as 5% gas in carbon dioxide diluent 95%.

ACTION: Xenon Xe 133 is a readily diffusible gas which is neither utilized nor produced by the body. It passes through cell membranes and freely exchanges between blood and tissue. It tends to concentrate more in body fat than in blood, plasma, water or protein solutions. In the concentrations used for diagnostic purposes it is physiologically inactive. Inhaled Xenon Xe 133 gas will enter the alveolar wall and enter the pulmonary venous circulation via the capillaries. Most of the Xenon Xe 133 that enters the circulation from a single breath is returned to the lungs and exhaled after a single pass through the peripheral circulation.

INDICATIONS: Inhalation of Xenon Xe 133 gas has proved valuable for the evaluation of pulmonary function and for imaging the lungs. It may also be applied to assessment of cerebral flow.

CONTRAINDICATIONS: To date, no known contraindications to the use of Xenon Xe 133 gas have been reported.

WARNINGS: This radiopharmaceutical should not be administered to pregnant or lactating women unless the benefits to be gained outweigh the potential hazards. Ideally, examinations using radiopharmaceuticals, especially those of an elective nature, of a woman of childbearing capability should be performed during the first few (approximately 10) days following the onset of the menses.

Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and handling of radionuclides produced by nuclear reactor or particle accelerator, and whose experience and training have been approved by the appropriate governmental agency authorized to license the use of radionuclides.

PRECAUTIONS: As in the use of any other radioactive material care should be taken to insure minimum radiation exposure to the patient, consistent with proper patient management, and to insure minimum radiation exposure to occupational workers. Exposed Xenon Xe 133 gas should be controlled in a manner that is in compliance with the appropriate governmental agency regulations.

Xenon Xe 133 adheres to some plastics and rubber and should not be allowed to stand in tubing or respirator containers. Such unrecognition loss of radioactivity from the dose for administration may render the study nondiagnostic. Xenon Xe 133 gas delivery systems, e. respirators or spirometers, and associated tubing assemblies must be

leakproof to avoid loss of radioactivity into the laboratory environs not specifically protected by exhaust systems.

ADVERSE REACTIONS: To date, no adverse reactions based on the use of Xenon Xe 133 gas have been reported.

DOSE AND ADMINISTRATION: Xenon Xe 133 gas is administered by inhalation from closed respirator systems or spirometers. The suggested activity range employed for inhalation by the average adult patient (70 kg) is:

Pulmonary function including imaging: 2-30 mCi in 3 liters of air.
Cerebral blood flow: 10-30 mCi in 3 liters of air.

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

PHYSICAL CHARACTERISTICS: Xenon Xe 133 decays by beta and gamma emissions with a physical half-life of 5.27 days (1). Photons that are useful for imaging studies are listed in Table 1.

Table 1. Principal Radiation Emission Data Xenon Xe 133

Radiation	Mean % per Disintegration	Mean Energy (keV)
Beta-2	99.30	100.6
Gamma-2	34.99	81.0
K int. con. electrons-2	47.24	45.0
L int. con. electrons-2	7.87	75.7
M int. con. electrons-2	9.84	80.0
K x-rays	34.70	30.8
L x-rays	7.67	35.2

(1) Dillman, L.T., Radionuclide Decay Schemes and Nuclear Parameters for the Radionuclide Estimation, Part 2, Supplement No. 4, MIRD pamphlet No. 6, J. Nucl. Med., p. 28, 1970.

The specific gamma ray constant for Xenon Xe 133 is 0.44 R/mCi-hr. at 1 cm. The half value layer is 1 mm of Pb.

To correct for physical decay of this radionuclide, the fractions that remain at selected time intervals before and after the date of calibration are shown in Table 2.

Table 2. Xenon Xe 133 Physical Decay Chart (Half-life 5.27 days)

Day	Fraction Remaining	Day	Fraction Remaining
-5	1.930	8	.349
-4	1.693	9	.302
-3	1.483	10	.268
-2	1.300	11	.235
-1	1.140	12	.206
0*	1.000	13	.181
1	.877	14	.159
2	.769	15	.139
3	.674	16	.122
4	.591	17	.107
5	.518	18	.094
6	.454	19	.082
7	.398	20	.072

*Calibration Day

RADIATION DOSIMETRY: The estimated absorbed radiation doses (2) to an average patient (70 kg) for pulmonary perfusion and cerebral blood flow studies from a maximum dose of 30 millicuries of Xenon Xe 133 in 3 liters of air are shown in Table 3.

Table 3. Radiation Doses

	Effective Half-time	Lungs*	Brain	Whole Body
Pulmonary Perfusion	2 min.	0.25	0.0014	0.0027
Cerebral Blood Flow	5 min.	0.63	0.0035	0.0068

*95% of activity is in lungs

(2) Method of Calculation: A Schema for Absorbed-Dose Calculation for Biologically Distributed Radionuclides, Supplement No. 1, MIRD pamphlet No. 1, J. Nucl. Med., p. 7, 1968.

NOW SUPPLIED: The Xenon Xe 133 gas is supplied as part of the Calidosor[®] system, consisting of 2 ml unit dose vials and the Calidosor dispenser[®] for shielded dispensing. Normally vials containing either 10 or 20 mCi/vial, packed up to 5 vials per shield tube, are supplied. Vials containing up to 100 mCi/vial are available.

*Patent Pending *J0 127 July 1975, Rev 1

PULMOLITE[™]

Technetium Tc 99m Aggregated Albumin Kit

August 1976

DIAGNOSTIC—FOR INTRAVENOUS USE

DESCRIPTION: Each vial of PULMOLITE[™] Technetium Tc 99m Aggregated Albumin Kit contains a sterile, pyrogen-free, lyophilized mixture of 1.0mg of aggregated albumin (Human), 10mg of normal serum albumin, 10mg of sodium chloride, and 0.07mg (in amount of stannous chloride dihydrate). PULMOLITE is prepared from albumin that is nonreactive when tested for hepatitis B antigen (HBsAg) by radioimmunoassay. Each vial contains 3.6-6.5 x 10⁸ aggregated albumin particles. The particle size distribution of the aggregated albumin is such that not less than 85% are within the range of 15-90 microns in size. There are no aggregated albumin particles greater than 150 microns in size. Reconstitution of PULMOLITE with sodium pertechnetate Tc 99m provides an aqueous suspension of Technetium Tc 99m aggregated albumin, with a labeling efficiency of >90%.

PHYSICAL CHARACTERISTICS

Technetium Tc 99m decays by isomeric transition with a physical half life of 6.03 hours (1). Photons that are useful for detection and imaging are listed in Table 1.

Table 1. Principle Radiation Emission Data

Radiation	Mean %/ Disintegration	Mean Energy (keV)
Gamma-2	87.9	140.5

(1) Dillman, L.T. and Van der Lage, F.C. Radionuclide Decay Schemes and Nuclear Parameters for Use in Radiation-Dose Estimation, MIRD Pamphlet No. 10, p. 62, (1975).

EXTERNAL RADIATION

The specific gamma ray constant for Tc 99m is 0.8R/mCi-hr at 1 cm. The first half value thickness of lead (Pb) for Tc 99m is 0.2mm. A range of values for the relative attenuation of the radiation emitted by this radionuclide that results from interposition of various thicknesses of Pb is shown in Table 2. For example, the use of 2.7mm of Pb will decrease the external radiation exposure by a factor of about 1,000.

Table 2. Radiation Attenuation by Lead Shielding

Shield Thickness (Pb) mm	Coefficient of Attenuation
0.2	0.5
0.95	10 ⁻¹
1.8	10 ⁻²
2.7	10 ⁻³
3.6	10 ⁻⁴
4.5	10 ⁻⁵

To correct for physical decay of this radionuclide, the fractions that remain at selected time intervals after the time of calibration are shown in Table 3.

Table 3. Physical Decay Chart: Tc 99m Half-Life 6.03 Hours

Hours	Fraction Remaining	Hours	Fraction Remaining
0*	1.000	8	.399
1	.891	9	.355
2	.795	10	.317
3	.708	11	.282
4	.631	12	.252
5	.563		
6	.502		
7	.447		

*Calibration Time

CLINICAL PHARMACOLOGY: Within 5-10 minutes of intravenous injection, over 90% of Tc 99m aggregated albumin is trapped in the arterioles and capillaries of the lung.

Organ selectivity is a direct result of particle size. Below 1-10 microns the aggregates are taken up by the reticuloendothelial system. Above 10-15 microns the aggregates become lodged in the lung capillaries by a purely mechanical process. Distribution of particles in the lungs is a function of regional pulmonary blood flow.

Lung to liver ratios of about 19:1 are obtained within the first few minutes. Elimination of the Tc 99m aggregated albumin from the lungs occurs with a half-life of about 5.6 hours. Cumulative urinary excretion studies show an average of 20% elimination of the injected Tc 99m dose 24 hours post administration.

INDICATIONS AND USAGE: Technetium Tc 99m aggregated albumin is indicated as a lung imaging agent to be used as an adjunct in the evaluation of pulmonary perfusion.

CONTRAINDICATIONS: Technetium Tc 99m aggregated albumin should not be administered to patients with severe pulmonary hypertension.

The use of Tc 99m aggregated albumin is contraindicated in persons with a history of hypersensitivity reactions to products containing human serum albumin.

WARNINGS: The possibility of allergic reactions should be considered in patients who receive multiple doses.

Theoretically, the intravenous administration of particulate material such as aggregated albumin imposes a temporary small mechanical impediment to blood flow. While this effect is probably physiologically insignificant in most patients the administration of aggregated albumin is possibly hazardous in acute cor pulmonale and other states of severely impaired pulmonary blood flow.

This radiopharmaceutical preparation should not be administered to children or to pregnant or lactating women unless the expected benefits to be gained outweigh the potential risks.

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

PRECAUTIONS: In cases of right-to-left cardiac shunt, additional risk may exist due to the rapid entry of aggregated albumin into the systemic circulation.

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

The labeling reactions involved in preparing the agent depend on maintaining tin in the reduced state. Any oxidant present in the sodium pertechnetate Tc 99m supply may thus adversely affect the quality of the prepared agent. Hence, sodium pertechnetate Tc 99m containing oxidants, or other additives, should not be employed without first demonstrating that it is without adverse effect on the properties of the resulting agent.

The contents of the vial are sterile and non-pyrogenic. It is essential that the user follow the directions carefully and adhere to strict aseptic procedures during preparation of the radiodagosome.

Technetium Tc 99m aggregated albumin is physically unstable and as such the particles will settle with time. Failure to mix the vial contents adequately before use may result in non-uniform distribution of radioactivity.

It is also recommended that, because of the increasing probability of agglomeration with aging, a batch of Technetium Tc 99m aggregated albumin not be used after eight hours from the time of reconstitution. Refrigerate at 2° to 8° C after reconstitution. If blood is withdrawn into the syringe, unnecessary delay prior to injection may result in clot formation in situ.

The contents of the vial are under a nitrogen atmosphere and should be protected from air. Do not use if clumping or foaming of the contents is observed.

Adequate reproduction studies have not been performed in animals to determine whether this drug affects fertility in males or females, has teratogenic potential, or has other adverse effects on the fetus. Technetium Tc 99m aggregated albumin should be used in pregnant women only when clearly needed.

It is not known whether this drug is excreted in human milk. As a general rule, nursing should not be undertaken while a patient is on a drug since many drugs are excreted in human milk.

Safety and effectiveness in children have not been established. As in the use of any radioactive material, care should be taken to minimize radiation exposure to the patient, consistent with proper management, and to insure minimum radiation exposure to the occupational worker.

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 governmental agency authorized to license the use of radionuclides.

ADVERSE REACTIONS: The literature contains reports of deaths occurring after the administration of aggregated albumin to patients with pre-existing severe pulmonary hypertension. Instances of hemodynamic or dysrhythmic reactions to preparations of Tc 99m-labeled aggregated albumin have been reported.

Hypersensitivity reactions are possible whenever protein-containing materials such as Tc 99m-labeled aggregated albumin are used in man. Epinephrine, antihistamines and corticosteroid agents should be available for use.

DOSE AND ADMINISTRATION: The recommended intravenous dose range for the average patient (70kg) is 1 to 4 millicuries. The volume of the dose may vary from 0.2 to 1.3ml.

The recommended number of aggregated albumin particles to be administered per dose is 200,000-700,000 with the suggested number being approximately 350,000.

For ease and accuracy in dispensing the prepared agent, it is recommended that prior to reconstitution, concentrated sodium pertechnetate Tc 99m be further diluted to a volume of 8ml with fresh, preservative-free sodium chloride injection (U.S.P.).

Table 4. Particles/Dose x 10⁸ (T = 5 x 10⁸ particles/vial)

Reconstitution Activity (mCi)	Dose			
	1mCi	2mCi	3mCi	4mCi
20	0.25	0.50	0.75	1.0
30	0.17	0.33	0.50	0.67
40	0.13	0.25	0.38	0.50
50	0.10	0.20	0.30	0.40

*The particles per millicurie dose will increase in relation to the physical decay of Tc 99m such that at six hours (one half-life) after preparation, the values in the table will increase by a factor of two.

In case of right-to-left cardiac shunt the number of aggregated albumin particles administered per dose should be reduced to the minimum feasible.

The patient dose should be measured by a suitable radioactivity calibration system immediately prior to patient administration. Re-suspend particles by repeated inversion of the syringe immediately prior to injection. (If blood is drawn into syringe, any unnecessary delay prior to injection may lead to clot formation in situ). Do not backflush the syringe, slow injection is recommended, and for optimum results, imaging should begin as soon as possible after injection.

RADIATION DOSIMETRY

The estimated absorbed radiation doses (1) to an average patient (70kg) from an intravenous injection of 4 millicuries of Tc 99m aggregated albumin are shown in Table 5.

Table 5. Radiation Doses

Tissue	Radiation Absorbed Dose (rads/4mCi)
Lungs	1.04
Whole Body	0.06
Liver	0.12
Spleen	0.11
Bladder Wall 2 hour void	0.08
4.8 hour void	0.11
Ovaries	0.08
Testes	0.07

(1) Method of Calculation: A Schema for Absorbed-Dose Calculations for Biologically Distributed Radionuclides, Supplement No. 1, MIRD Pamphlet No. 1, p. 7, (1968).

NOW SUPPLIED: PULMOLITE[™] Technetium Tc 99m Aggregated Albumin Kit is supplied in lots of five (5) or thirty (30) vials, sterile and non-pyrogenic, each vial containing in lyophilized form:

Aggregated albumin (human)-1.0mg
Normal human serum albumin-10mg
Sodium chloride-10mg
Stannous chloride dihydrate, maximum-0.07mg

Each vial contains 3.6-6.5 x 10⁸ aggregated albumin particles.

PULMOLITE contains no preservative; after reconstitution the shielded vial should be stored at 2° to 8° C.

Included in each five (5) vial kit is one (1) package insert and six (6) radiation labels. Included in each thirty (30) vial kit is one (1) package insert and thirty-six (36) radiation labels.

DIRECTIONS

Aseptically inject approximately 8ml of sodium pertechnetate Tc 99m, containing about 20 to 50 millicuries (pre-diluted with sterile, preservative-free saline as necessary) into a shielded vial of PULMOLITE.

NOTE: Enter the vial septum with the needle at an oblique angle and add the pertechnetate solution in such a way that it first strikes the vial wall. Shake vigorously for at least 30 seconds before use. Complete the Radiation Label provided and apply to shield. Prior to withdrawing an aliquot, re-suspend the particles by repeatedly inverting the shielded vial for 15 seconds. After reconstitution, store at 2° to 8° C and use the preparation within eight hours.

This reagent kit is approved for use by persons licensed by the U.S. Nuclear Regulatory Commission pursuant to Section 35.14 and 35.100 Group III of 10CFR 35 or under licenses of Agreement States.

511188

Catalog Number NRP-415

Printed in U.S.A.

Europe:

NEN Chemicals GmbH,
D-6072 Dreieich, W. Germany,
Postfach 401240
Tel. (06103) 85034
Order Entry: (06103) 81011



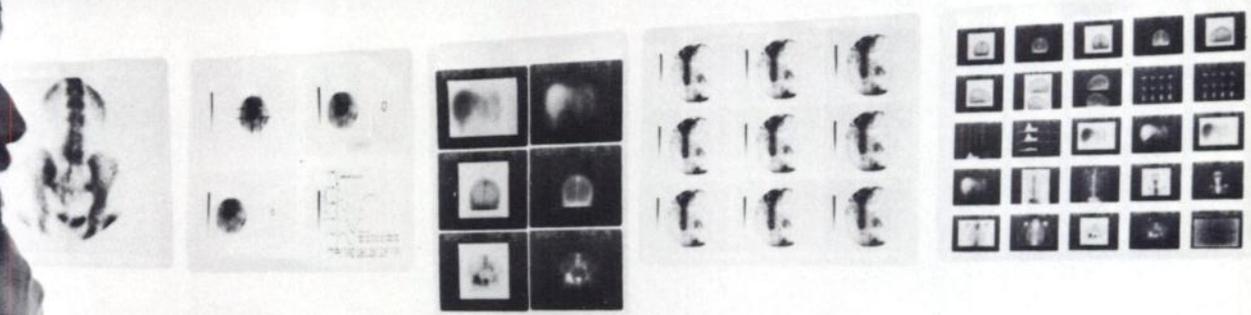
New England Nuclear
Medical Diagnostics Division

601 Tremble Cove Rd., North Billerica, MA 01862. Call Toll-Free: 800-225-1572/Telex: 94-0996 (In Mass. and International: 617-482-9595)

Canada:

NEN Canada,
2453 46th Avenue,
Lachine, Que. H8T 3C9
Tel. 514-636-4971

Matrix video cameras do everything but develop the film... and that's next.



Everything medical imaging cameras should do, that is. Effortlessly. Automatically. Excellently, in over 1,000 new installations a year. Matrix video cameras embody the latest in video, optical and microprocessor technology. They handle the relatively diverse demands of ultrasound and nuclear computers as well as the special, high line rate requirements of CT or fluoroscopy reproduction. They give you quality images, from which you can diagnose confidently.

The video cameras that do everything are *the only ones which automatically adjust exposure time*. Other camera systems make you do it manually. We think you have enough to do. Matrix cameras have a photometer which measures a calibration pattern. *Before each exposure*, it reads light levels, compares them with optimum values and adjusts accordingly. Automatically. All in a quarter of a second. You can be confident the scans you do at the end of the day will have the same gray scale content as the ones you do at the beginning of the day.

The "do-everything" cameras have the widest selection of image size formats to meet the needs of your lab or service. With the Multi-Imager 7 as many as 8 different ones. With the Video Imager, as few as one. Flexibility from a single large image to 25 slide size images. Film sizes of 8"x10" and 11"x14". All from one camera!

Most of all, you get excellent, effortless diagnostic images, automatically. Nothing less than you'd expect from the camera that does everything but develop the film... AND THAT'S NEXT, FROM MATRIX.

✻ MATRIX INSTRUMENTS

230 Pegasus Ave., Northvale, N.J. 07647
(201) 767-1750 Toll Free: (800) 526-0274
Telex: 135131
Worldwide sales and service.
Contact international department.



Please send more information and sample studies. JNM

- | | |
|--------------------------------------------------------|----------------------------------------------------|
| <input type="checkbox"/> Ultrasound | <input type="checkbox"/> Nuclear Medicine Computer |
| <input type="checkbox"/> CT | <input type="checkbox"/> Fluoroscopy |
| <input type="checkbox"/> Nuclear Medicine Gamma Camera | |

Name _____ Title _____

Hospital _____ Dept. _____

Address _____

City _____ State _____ Zip _____

When Toshiba gave nuclear medicine the world's first jumbo gammacamera in 1973, the medical community was very impressed. But we were dedicated to giving you more, so we introduced the world's first jumbo gammacamera with high resolution, fine diagnostic detail over a large area. That was important, but we knew it still wasn't enough.

Now, we are introducing the latest in the state-of-the-art, the GCA-402. The world's first Super High Resolution, Large Field Gammacamera combining stability and exceptional workload capability in one instrument. Frankly, we're pleased.

Toshiba's system approach allows for no compromise where clinical diagnostic values are concerned. The GCA-402 is a prime example. High resolution is the basis for obtaining useful diagnostic images. The intrinsic resolution and linearity of the GCA-402, combined with its range of ten collimators provides unsurpassed images of exceptional diagnostic value. The GCA-402 incorporates 61 photo-multiplier tubes to electronically smooth the image and eliminate the high-energy collimator hole patterns unavoidable in conventional systems. Its 35cm field of view combined with 17 preselected isotope ranges allows unobstructed views of large organs, or groups of organs, as well as whole body scanning.

Toshiba's patented* delay line system and modern IC-technology provide long term stability, trouble free performance, and ease of operation.

Of course, the GCA-402 has a wide range of accessories including special collimators, whole body scanning bed, video tape and film recorders, plus, the GCA-402 may be interfaced to any computer.

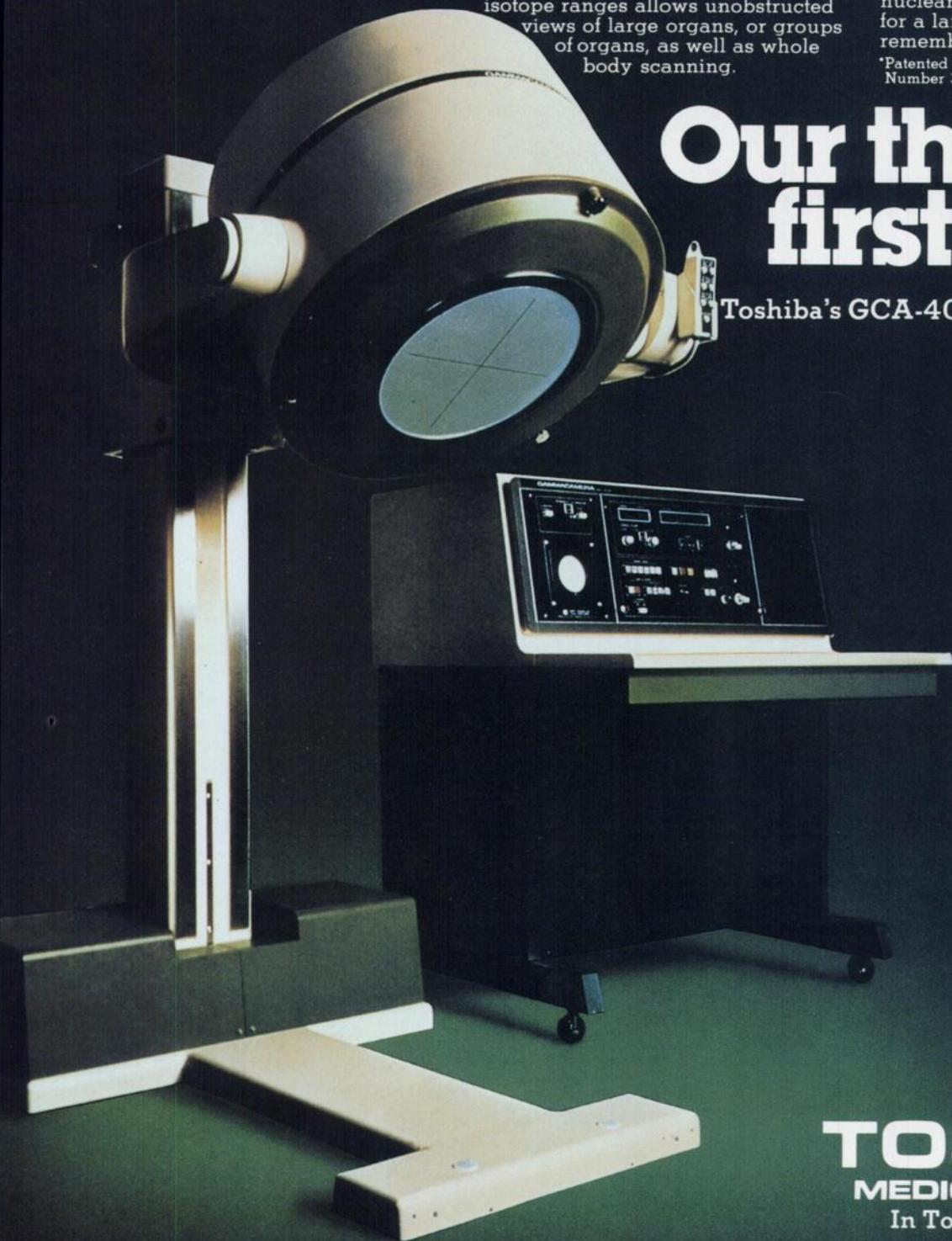
This combination of human engineering, fail-proof auto exposure and easy collimator changeover provides the highest efficiency while minimizing patient discomfort.

When you're ready to fill your nuclear medicine department's need for a large field gammacamera, remember Toshiba. We're the first.

*Patented Delay Line, U.S. Patent Number 3,717,763

Our third is first again

Toshiba's GCA-402 Jumbo Gammacamera



TOSHIBA
MEDICAL SYSTEMS
In Touch with Tomorrow

Division Of Toshiba International Corporation
1154 Dominguez St., Carson, California 90745 (213) 638-5153



Report: The following corporations have a better quality
MAA Kit than CIS Radiopharmaceuticals, Inc.,
5 DeAngelo Drive, Bedford, MA
Telephone no. (617) 275-7120 — 800-225-1145-46



Power. To push around.

Mobile Power You Can Control.

Take it anywhere—and interface it with any gamma camera.

Newest of our Spectrum One nuclear medicine computers and cameras, the MCS-560 makes analysis of cardiology and nuclear medicine procedures easy.

Easy To Use.

The MCS-560 is the most powerful mobile nuclear medicine computer anywhere. Sophisticated analysis is easy with: conversational programs pushbutton protocols unique MEDI-BASIC programming language built-in ECG Isolator/Detector unique tomographic reconstruction programs.

Backed by our own dedicated nuclear products service team, we're building our one-source reputation with a commitment to excellence.

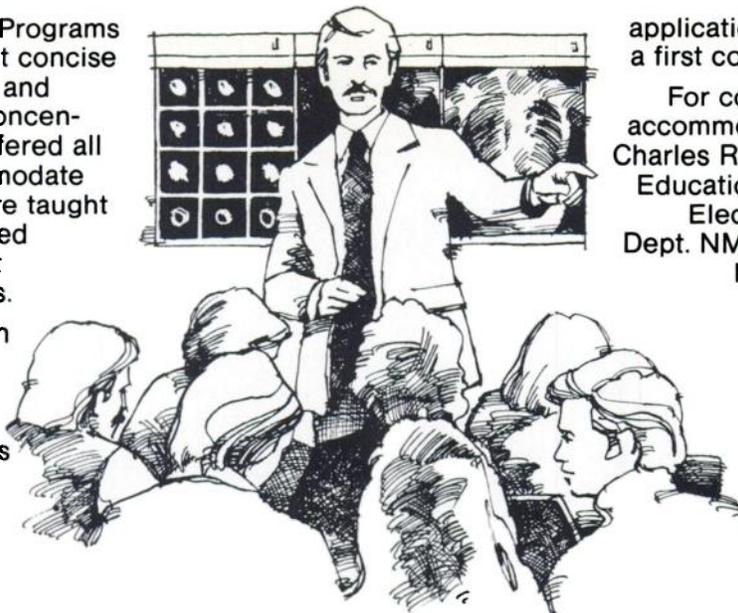


ohio-nuclear, inc.
we're the one.

Write or call Ohio-Nuclear, Inc.,
Nuclear Marketing Dept., 29100 Aurora Road,
Solon Ohio 44139 (216) 248-1800.

GE Medical Education Programs are comprehensive, yet concise courses for physicians and technologists. These concentrated programs are offered all year around to accommodate busy schedules, and are taught by a skilled, experienced faculty, using the latest educational techniques.

Completed courses can be applied to meet accreditation and continuing education requirements. But class sizes are limited, so enroll today. All



applications are processed on a first come, first served basis.

For complete details, dates, accommodations, etc., write to: Charles Rose, Director Medical Education Programs, General Electric Medical Systems, Dept. NM, P.O. Box 414 TI 40, Milwaukee, Wisconsin 53201. Or call: 414-383-3211, ext. 2286, Dept. NM.



Medical Education Programs

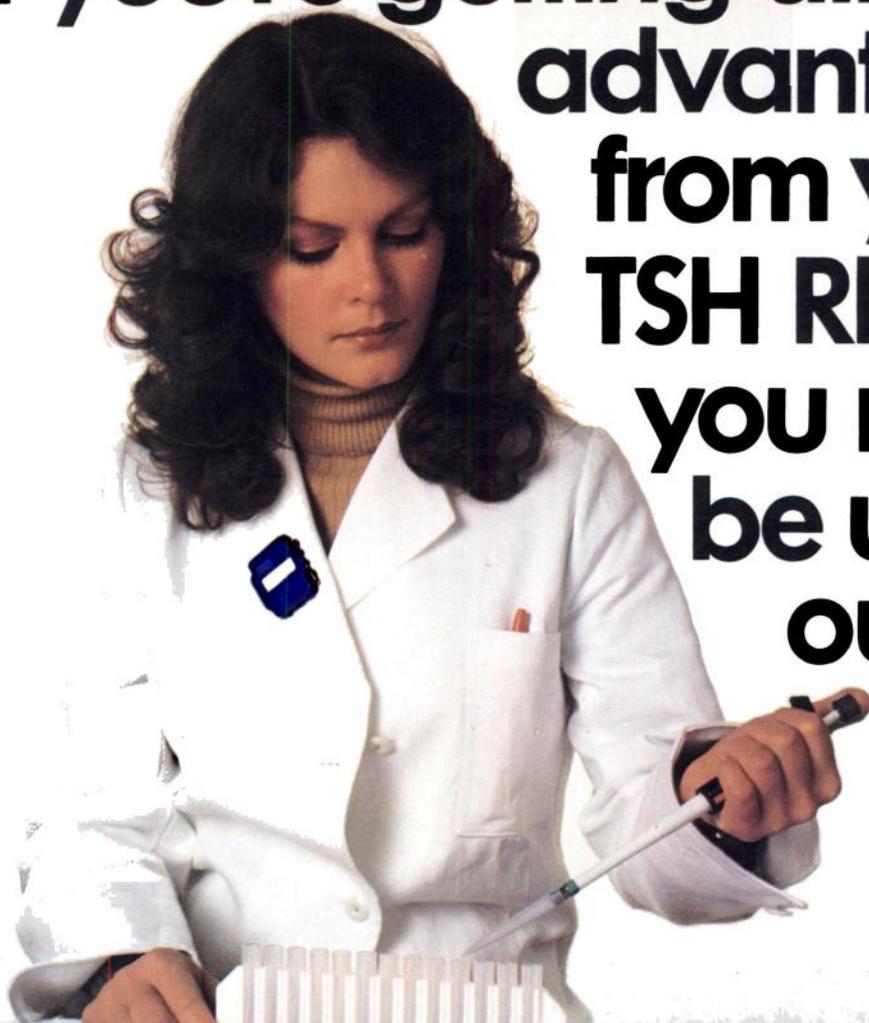
Announcing a 24 course, low-fat curriculum for healthcare professionals.

1979 GE MEDICAL EDUCATION PROGRAMS												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
RADIOLOGY PROGRAMS												
Understanding X-ray Generation I		•						•				
Standardization of Radiologic Techniques II			•					•				
Quality Assurance in Radiology III			•					•				
Introduction to Radiologic Techniques						•						•
Radiology Registration & Certification				•						•		
Advanced Concepts in Diagnostic Imaging*											•	
COMPUTED TOMOGRAPHY PROGRAMS												
Principles of Computerized Tomography I			•						•			
Quality Control in Computerized Tomography II			•						•			
Quality Assurance in Computerized Tomography III			•						•			
Advanced Concepts in Diagnostic Imaging*											•	
NUCLEAR MEDICINE PROGRAMS												
Basics of Nuclear Medicine		•		•			•			•		
Quality Control & Compliance in Nuclear Medicine					•					•		
Advanced Concepts of Nuclear Medicine				•							•	
Dynamics in Nuclear Medicine					•				•			
Nuclear Cardiology	•						•				•	
Comprehensive Nuclear Medicine		•	•								•	
Nuclear Medicine Registration & Certification			•					•				
Radiopharmaceutical Techniques			•					•				
Advanced Concepts in Diagnostic Imaging*											•	
Radioisotope Handlers			•		•				•			•
MONITORING PROGRAM												
Principles of Cardiovascular Monitoring	•					•						
ULTRASOUND PROGRAMS												
Basics of Ultrasound I	•				•					•		
Quality Control & Compliance in Ultrasound II					•					•		
Advanced Concepts in Diagnostic Imaging*											•	
MANAGEMENT PROGRAMS												
Medical Management	•					•						•
Management Contract				•		•		•		•		
Medical Laboratory Management for Diagnostic Accuracy and Cost Containment							•					
DENTAL PROGRAM												
Radiological Techniques in Dentistry		•		•			•		•			•

*Includes Coverage of Radiology, CT, Ultrasound and Nuclear Medicine



If you're getting all these advantages from your TSH RIA Kit, you must be using ours



Quick reliable results

Tests are completed in one working day — with excellent reproducibility within and between batches.

Room Temperature Incubation

Eliminates the use of a water bath for the incubation stages.

Colour coding reduces missed tubes

And indicates adequate mixing of reagents.

New TSH RIA Kit

Examine the advantages of our new kit for yourself, and discover the optimum balance we have achieved in assay performance, reliability and service.

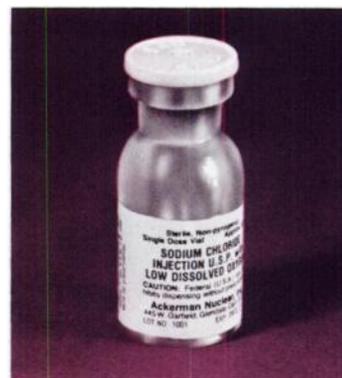


THE OBVIOUS SOLUTION

Low* Dissolved Oxygen Non-preservative normal saline U.S.P.

Designed with Nuclear Medicine in mind, Low Dissolved Oxygen, non-preservative, normal saline for routine use is now available from Ackerman Nuclear, Inc.

- **ELUTION:**
Use for eluting Technetium-99m generators.
- **DILUTION:**
Use for diluting high specific concentrations of Technetium-99m.



SODIUM CHLORIDE INJECTION U.S.P. with LOW DISSOLVED OXYGEN pH 4.5 to 7.0

DESCRIPTION:

SODIUM CHLORIDE INJECTION U.S.P. with LOW DISSOLVED OXYGEN is a sterile isotonic solution of sodium chloride in water for injection. It contains no antimicrobial agent. It contains 0.9% sodium chloride and is packaged in single dose vials. The osmolarity is 300 mOsm/l, the dissolved oxygen content is less than 5 ppm.

INDICATIONS:

SODIUM CHLORIDE INJECTION U.S.P. with LOW DISSOLVED OXYGEN is indicated for eluting, preparing and/or diluting pharmaceuticals that specify oxidants may cause adverse effects on the final product. SODIUM CHLORIDE INJECTION U.S.P. with LOW DISSOLVED OXYGEN is also used as a fluid and electrolyte replenisher or as an irrigating solution.

WARNING:

Excessive amounts of sodium chloride by any route may cause hypotatsemia and acidosis. Excessive amounts by the parental route may precipitate congestive heart failure and acute pulmonary edema, especially in patients with cardiovascular disease, and in patients receiving corticosteroids or corticotropin drugs that may give rise to sodium retention. No antimicrobial agent has been added.

PRECAUTIONS:

Unused amounts should be discarded immediately following withdrawal of any portion of the contents.

HOW SUPPLIED:

Catalog No.	Product	Packaging
S-25	SODIUM CHLORIDE INJECTION U.S.P. with LOW DISSOLVED OXYGEN	25/10 ml vials

Each 10 ml single dose vial contains approximately 6 ml. Each ml contains 9 mg sodium chloride providing 0.154 mEq each of sodium and chloride ions. Total osmolarity 300 mOsm/l; pH between 4.5 and 7.0. Dissolved oxygen content less than 5 ppm. Contains no preservatives.

ACKERMAN NUCLEAR, INC.
445 W. Garfield Avenue
Glendale, Calif. 91204

1/78

Decrease the amount of oxygen you add daily and reduce the effect of one more variable from your radiopharmacy. Use Low Dissolved Oxygen saline when preparing kits containing any stannous tin products.

*less than 5 ppm

For additional information call or write to:



ACKERMAN NUCLEAR, INC.

Pharmaceuticals for Nuclear Medicine
445 W. Garfield Ave.
Glendale, CA 91204, USA
(213) 240-8555



THE RIGHT PATIENT, THE RIGHT ACTIVITY, THE RIGHT DOSE. THAT'S THE TICKET.

Wherever your mobile camera goes — ICU, CCU, Cath Lab, Surgery, Orthopedics — throughout the hospital — our CRC[®]-30's data ticket goes right along.

The CRC-30 Radioisotope Calibrator/Computer/Printer/Radiochemical Purity Analyzer System provides for patient ID, dose information, activity data, and more. All to keep you in compliance with Federal Regulations.

Best of all, the CRC-30 prints these tickets in triplicate, one for Nuclear Medicine, one accompanies the dose

and one for accountability.

If you're on the move with mobile imaging, get the ticket (and calibrator system) that lets you go first class.

The CRC-30 from Capintec.

Capintec Inc., 136 Summit Ave., Montvale, New Jersey 07645. Call toll free 800-631-2557. In New Jersey Tel.: 201-391-3930.

**RADIONUCLIDE DOSE COMPUTATION
AND MEASUREMENT RECORD**

PATIENT'S NAME: John Doe

I.D. 049-267-8412

STUDIES: MI

NUCLIDE: THALLIUM-201

FORM Thallium Chloride SAMPLE NO. 12

LOT NO. T029496 KIT NO. _____

DATE: 4 APRIL 79 14:10

CONCENTRATION: 970 uCi/ml

DOSE DESIRED: 1.5 mCi

VOLUME REQUIRED: 1.54 ml

ACTIVITY MEAS'D: 1.49 mCi

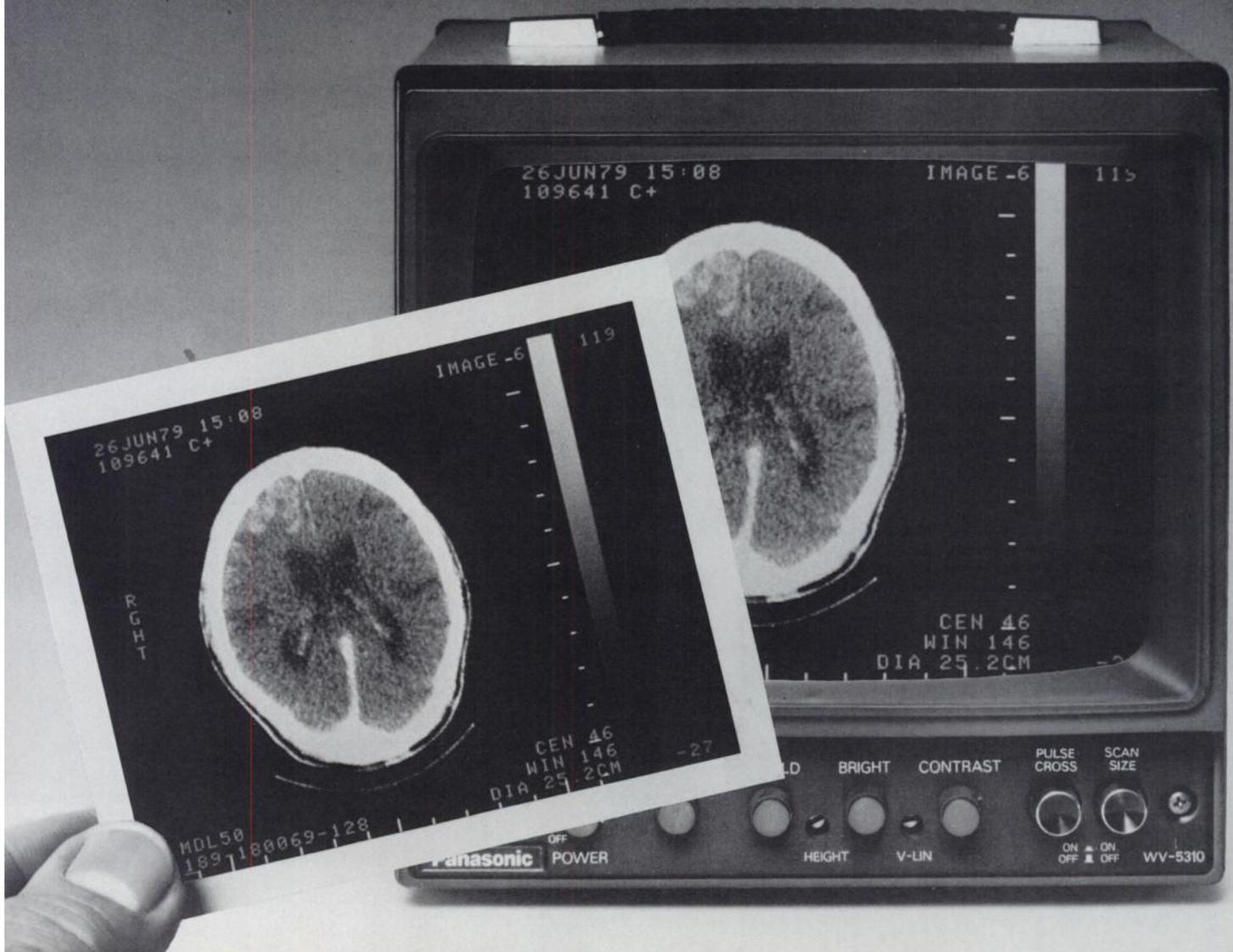
TIME OF ADMINISTRATION: 2:30 AM
PM

SIGNATURE(S): Jane Smith

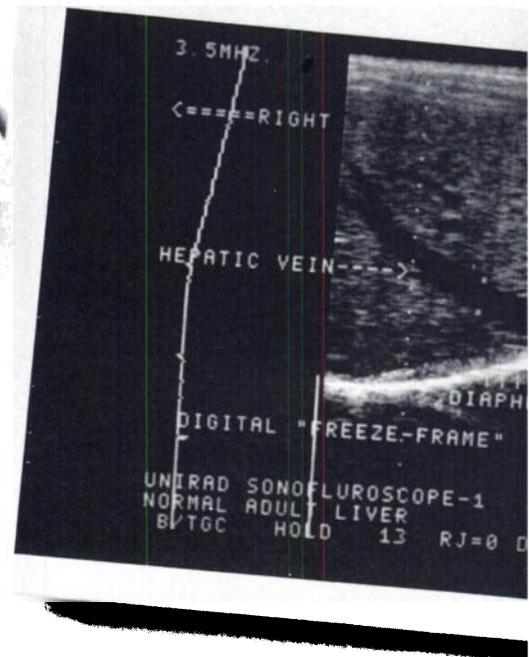
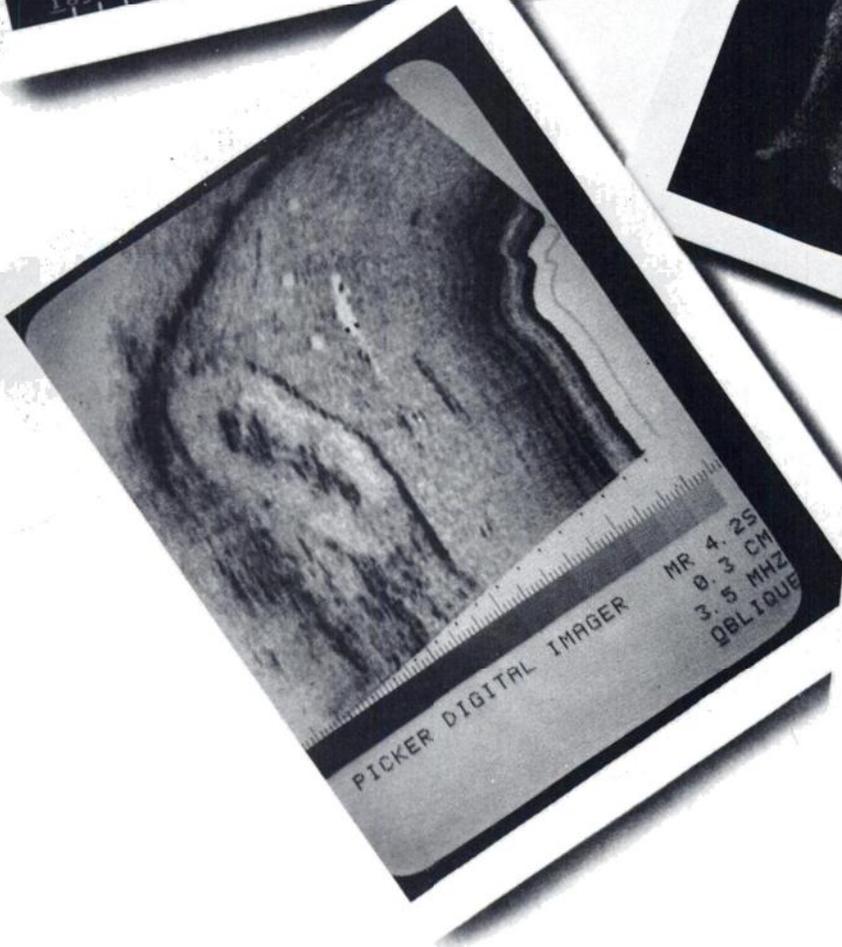
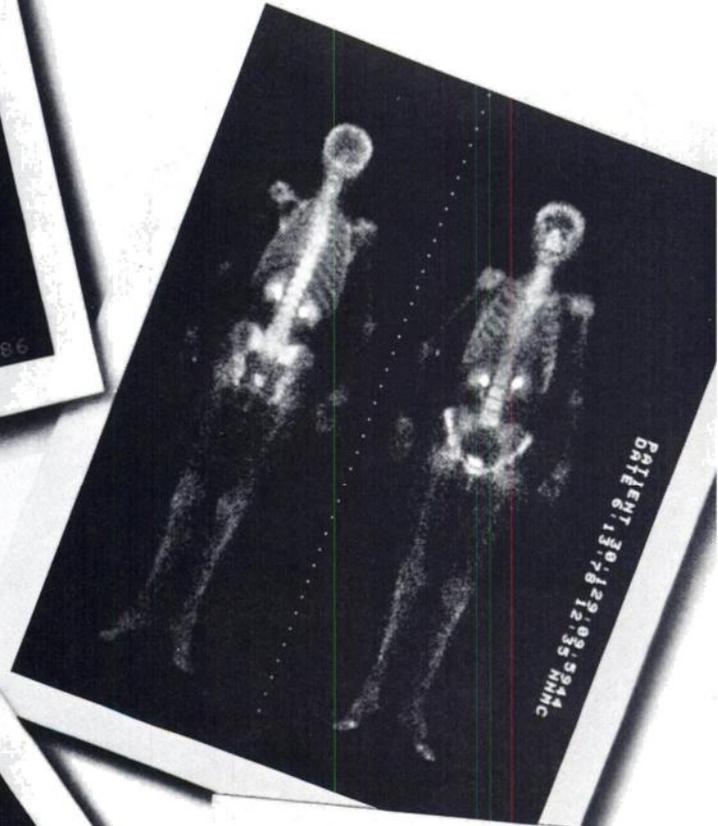
CI CAPINTEC, INC.
136 SUMMIT AVENUE • MONTVALE, NEW JERSEY 07645
(201) 391-3930
COPYRIGHT 1977

CI CAPINTEC
YOUR CRC-30 TICKET... DON'T LEAVE
NUCLEAR MEDICINE WITHOUT IT.

Polaroid introduces the first instant recording film to record exactly what you see on your video monitor.



Polaroid's new Type 611 Vi



Video Image Recording film.

Designed specifically for medical diagnostic video recording – with extended dynamic range and exposure latitude.

Now, for the first time, you can get positive prints of the "best visual image" on your video monitor. Instantly. And on-the-spot.

Without loss of detail or information. And without continual adjustments to your equipment.

With Polaroid's new Type 611 Video Image Recording film.

This new, low contrast, medium-speed film has been designed specifically for video recording. It has nearly twice the dynamic range of other Polaroid films.

Which means a wider exposure latitude (for improved recording of the brightness scale and ease of use) and a greatly expanded gray scale (for increased information).

As a result, Type 611 can give you information from

video displays fully equivalent to that of the best transparency films. But without the expense, delay or inconvenience of darkrooms and wet-film processors. Because all its operations—from loading to developing—take place in the light. And the prints don't need coating after development.

Type 611, which has a 3¼x4¼ inch format, can be used in the same camera backs and with the same imaging equipment that accept other Polaroid self-developing pack films.

What's more, Type 611 prints can be left to develop up to 3 minutes without any noticeable change in image quality.

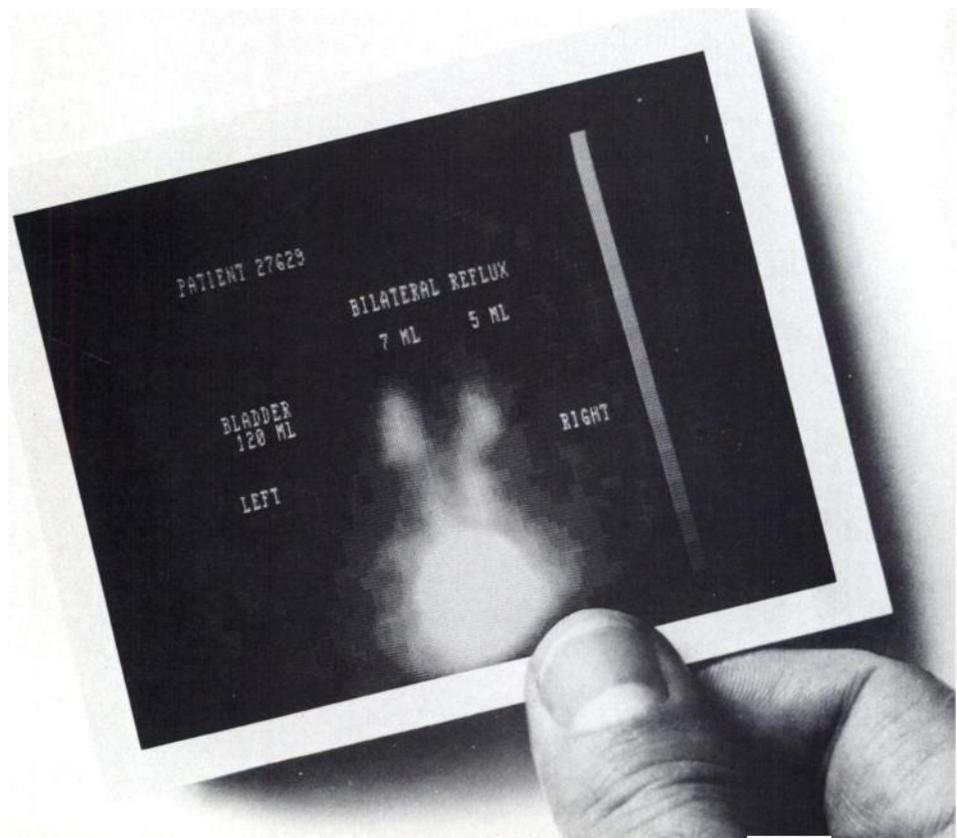
So, if you're making a whole series of pictures over a short period of time, you don't have to worry about accurate development timing.

Polaroid's new Type 611 Video Image Recording film. For positive prints of exactly what you see on your video monitor. In just 45 seconds.

For a sample two-pack (16 exposures) or application information, write: Polaroid Corporation, Dept. A413, 575 Technology Square, Cambridge, MA 02139. Or, call toll-free from anywhere in the continental U.S.: 800-225-1618 (in Massachusetts, call collect: 617-547-5177).

Polaroid

Instant Diagnostic Films



Disaster declared by Carter

Cities brace for worst

By DON HOFFMAN
Clarion-Ledger Staff Writer

Flood warning too late for evacuees

Flood reaches cash registers of area firms

As the crest of the Pearl River moves southward from Jackson this week, cities bordering the rain-swollen river are preparing for the worst.

And, in the eastern and southeastern portion of Mississippi, rivers in the Pascagoula River Basin are expected to reach record levels with some flooding possible.

The Pearl River was at 42.8 feet in Jackson late Monday afternoon, and the National Weather service said the river was expected to crest Monday night or early today at 45 feet — about 25 feet above flood stage. The previous high water record at Jackson was 37.5 feet in 1926.

The weather service said no rain was expected today or Wednesday, but showers are possible Friday and Saturday.

Mayor ... prepare to ... So far, we've made for the worst, if it

... from IA
victims to wait
...ed near
...ing a moratorium on all home mortgages until the disaster is over.
A 1978 state law provides \$50,000 for disaster relief.
... owners about the best way to protect on their flood insurance policies.

...GGY ELAM



SURVIVOR!



When Chandler Clover ordered his patients evacuated at 7:30 P.M. on Good Friday, he thought he was just taking a sound precautionary step. Neither the administrator of the new Womans Hospital, nor anyone else in Flowood, Mississippi, really expected the swelling waters of the Pearl River to reach their doorsteps. Yet by Easter Sunday, April 15, 1979, a dry doorstep was just a happy memory in this and other Jackson-area communities, deluged by the Pearl's historic "500 Year Flood."

For nearly a week, the water stood 41 inches deep in Womans Hospital. When it finally receded the following Thursday, Clover surveyed \$1.5 million in damages. Among the few items of equipment appearing remotely salvageable, was the Radiology Department's two year old Dunn Instruments Model 600 multi-image camera. Although it had been totally

submerged for several days, the administrator decided to have it returned to the factory for evaluation.

When Dunn service engineers received the camera, they scraped the mud off its video monitor face and shutter mechanism. Then they plugged it in and turned it on. When they operated the controls—you guessed it—the camera worked! All electronic and mechanical components, save the delicate shutter leaves, functioned normally. With a little cleaning up and replacing of rusted metal parts, the same camera—Serial No. 937—is going back to Womans Hospital.

Now, "natural disaster" coverage isn't part of our standard warranty yet. But we think

that the fantastic survivability shown by this camera says something about the standards of reliability and quality control our Engineering and Production people have been practicing for years. Standards backed up by the swift, skilled and personal attention of our Service Department. Standards that are still built into 600 Beta Series cameras and every other Dunn product.

So when your imaging needs include the ability to survive some wear and tear, as well as the highest quality photographic results, think of us.

Dunn Instruments, Inc.,
544 Second Street, P.O. Box
77172, San Francisco, CA 94107.

Newspaper articles and flood photos courtesy Jackson, Mississippi Clarion Ledger.

Dunn Instruments

Reliability put to the test.

Medi-Ray announces . . .

SURVEY METER

CALIBRATION and REPAIR SERVICE

The Medi-Ray Survey Meter Calibration and Repair Service is designed to provide reliable, competent calibration and repair for the areas of Nuclear Medicine, Radiology, Research and Industry. Our service incorporates the latest techniques and facilities, as well as a staff of highly qualified personnel functioning in the latest and most modern of environments. The result is the highest quality service at a reasonable cost to the customer.

Types of Meters:

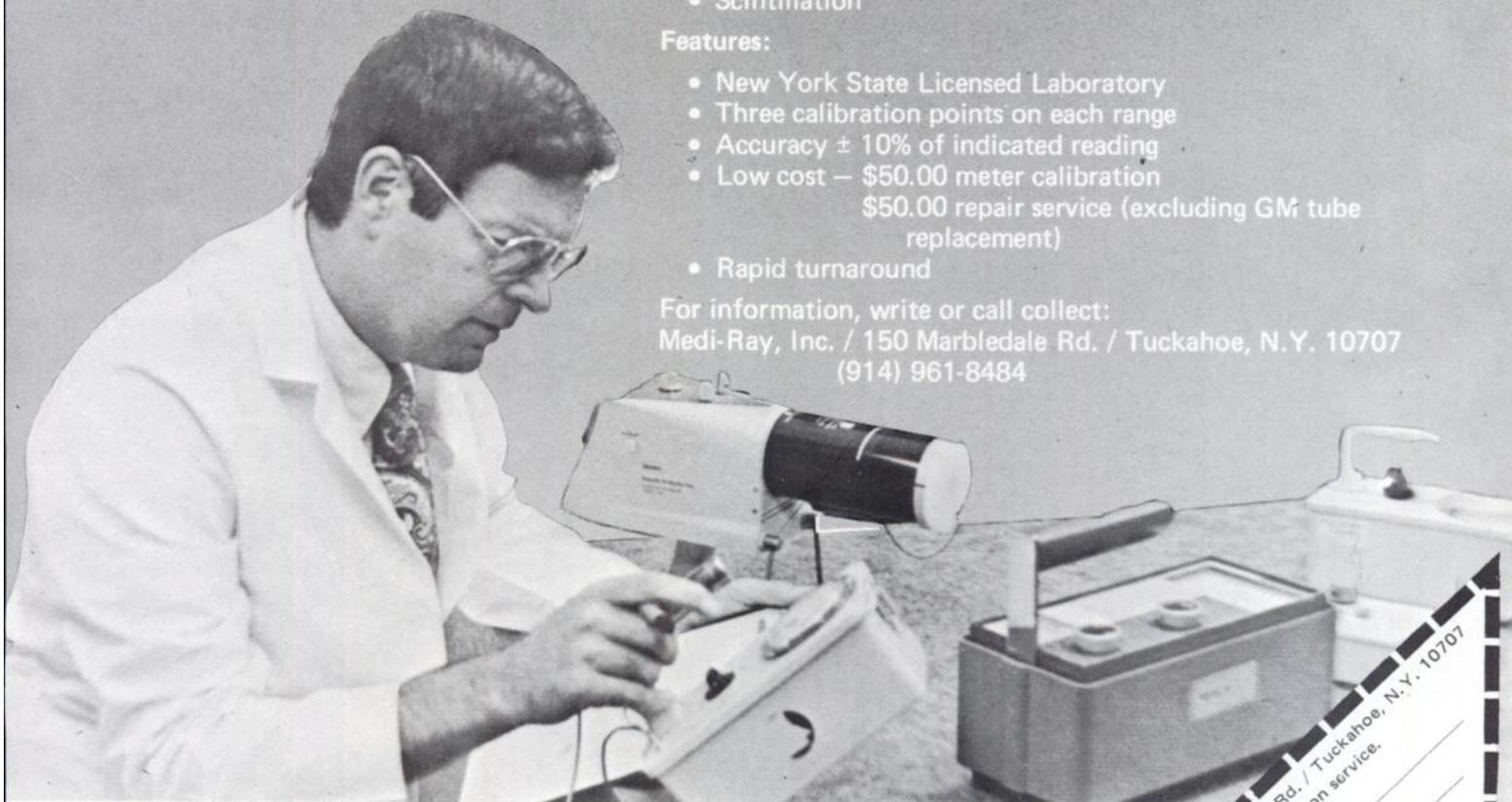
- Ionization Chamber
- Geiger - Mueller
- Scintillation

Features:

- New York State Licensed Laboratory
- Three calibration points on each range
- Accuracy \pm 10% of indicated reading
- Low cost - \$50.00 meter calibration
\$50.00 repair service (excluding GM tube replacement)
- Rapid turnaround

For information, write or call collect:

Medi-Ray, Inc. / 150 Marbledale Rd. / Tuckahoe, N.Y. 10707
(914) 961-8484



Medi-Ray, Inc.

Medi-Ray, Inc. / 150 Marbledale Rd. / Tuckahoe, N.Y. 10707
Please send information on calibration service.

Name	Title
Hospital	Dept.
Address	City
State	Zip
Phone	

PLACEMENT

POSITIONS OPEN

CONFIDENTIAL SERVICE NATIONWIDE
We are a search firm dealing nationwide in the Health Care Industry. All Fees Paid By Employer. Forward resume with salary requirements and location preferences to BMI, Health Care Division, P.O. Box 6457, Columbia, SC 29260, (803) 787-8710.

NUCLEAR MEDICINE RESIDENCY 830-bed VA general hospital offers AMA approved two year program. Two positions available July 1980. Located in San Fernando Valley 15 minutes from affiliated hospitals (UCLA and Wadsworth VA). Program covers isotope and ultrasound imaging, in vivo and in vitro procedures, including RIA, and all recent cardiology procedures. Prerequisite: one-two years post graduate training in medicine, radiology, or pathology. Minimum stipend: \$20,000. Contact: Marvin B. Cohen, M.D. Chief, Nuclear Medicine Service. Non-discrimination in employment. VA Medical Center, 16111 Plummer Street, Sepulveda, CA 91343.

NUCLEAR MEDICINE TECHNOLOGIST
Immediate opening for technologist in fully accredited 370-bed community and university affiliated hospital, situated in scenic northcentral Pennsylvania. Proficiency required in radio-immunoassay work, imaging, dynamic studies and computer applications. Department is equipped with cameras, rectilinear scanners, automated will counters, pipetter and a computer. Good salary and full benefits. Contact Ruth R. Hargrave, Assoc. Director of Personnel, The Williamsport Hospital, 777 Rural Avenue, Williamsport, PA. 17701. Equal Opportunity Employer.

RADIOLOGIST, BOARD CERTIFIED IN Nuclear Medicine, to join large multi-specialty pre-paid medical group. Opportunity to expand department and plan department for new hospital in 1982. Salary negotiable. Liberal Fringe Benefits. Contact: Hawaii Permanente Medical Group, Inc., 1697 Ala Moana Boulevard, Honolulu, Hawaii 98615. An Equal Opportunity Employer.

NUCLEAR MEDICINE PHYSICIAN. Position available in division of Nuclear Medicine, University of Utah. Rank and salary commensurate with experience and qualifications. Board certified or eligible preferred. Active clinical, teaching and research programs. Contact: Dennis M. Welch, MD, Div. of Nuclear Medicine, 50 No. Medical Drive, Salt Lake City, Utah, 84132. (801) 581-5924. An affirmative action, equal opportunity employer. Deadline for applications September 1, 1979.

NUCLEAR PHARMACIST: FULL TIME positions available for nuclear pharmacist with aggressive company. Positions available immediately in the Northeast. Send Resume to: Nunzio DeSantis, Northeast District Manager, Nuclear Pharmacy, Inc., 31 North 2nd Street, Philadelphia, PA 19106.

NUCLEAR CARDIOLOGY TECHNOLOGIST, applications are now being accepted for this position in our new Nuclear Cardiology Unit. Training and experience in computer applications preferred but registry eligible applicants may apply. Attractive salary and fringe benefits offered. Contact Personnel Director, Quain & Ramstad Clinic, Box 1818, Bismarck, North Dakota 58501. (701) 222-5412. An Equal Opportunity Employer.

NUCLEAR MEDICINE LABORATORY
Technologist with medical school affiliation needed for 600 bed teaching hospital. Bachelor degree in medical technology, with 2 years experience in nuclear medicine laboratory work at an institution with a board isotope use license. Registered Nuclear Medicine Technologist preferred. Contact: Office of employment services, Richland Memorial Hospital, 3301 Harden St., Columbia, SC 29203. (803) 765-6271. EOE M F H.

CHIEF-NUCLEAR MEDICINE SECTION: Physician, Board Certified in Nuclear Medicine (or eligible), wanted to head established Division in major affiliated teaching hospital. Three cameras, computer, stress testing equipment, 4,000 scans per year of which 500 are nuclear cardiology procedures. Immediate opening for progressive person. Contact: Director, Department of Radiology, Shadyside Hospital, Pittsburgh, PA 15232 (412) 622-2083.

NUCLEAR MEDICINE TECHNICIAN
The Baptist Medical Center-Montclair is accepting applications for the position of Nuclear Medicine Technician. The department is equipped with three cameras and two scanners; addition of a computer is planned. Must be graduate of an AMA approved School of Nuclear Medicine and have up to two years experience in a wide range of related procedures. Excellent salary and employee benefits. Send resume in confidence to: Department of Human Resources, The Baptist Medical Center-Montclair, 800 Montclair Road, Birmingham, Alabama 35213. An equal opportunity employer.

NUCLEAR MEDICINE PHYSICIAN. THE Division of Nuclear Medicine at the Hospital of the Univ. of Pennsylvania has an opening at the Asst. Prof. level. Strong background in both clinical and research nuclear medicine desirable. Well equipped Division with modern imaging instruments, computers and a cardiovascular Nuclear Medicine facility in ICU area. PETT scanner will be installed shortly. Excellent research opportunities. Contact Abass Alavi, MD, Chief, Division of Nuclear Medicine, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia, PA 19104.

UNIVERSITY OF MIAMI SCHOOL OF Medicine. Full-time Academic position involving all aspects of Nuclear Imaging, Radioassay, Echocardiography and Doppler Ultrasound. Experience in Cardiovascular procedures preferred but not essential. Contact Aldo N. Serafini, MD, Director of Nuclear Medicine, University of Miami School of Medicine, P.O. Box 016960, Miami, Florida 33101.

NUCLEAR MEDICINE TECHNOLOGIST ASCP or ARRT Registered to work in a rapidly expanding department of a 300 bed medical center with 169 bed satellite hospital utilizing the latest equipment and techniques. Will be required to trouble-shoot and situation which may arise and function under limited supervision. Excellent salary, fringe benefits and retirement plan. Contact: Personnel Department, St. Mary Medical Center, 540 Tyler Avenue, Gary, Indiana 46402. (219) 886-5334.

NUCLEAR MEDICINE PHYSICIAN. THE Department of Nuclear Medicine at the University of Tennessee Center for the Health Sciences has opening at Instructor or Assistant Professor level, depending upon qualifications. The department serves City of Memphis Hospital, LeBonheur Children's Hospital, and University of Tennessee Hospital. Proven ability in teaching and research and knowledge and practical experience in all major categories of Clinical Nuclear Medicine are necessary. ABNM certification or eligibility required. Send C.V. and references to Martha McDonald, MD, Acting Chairman: Department of Nuclear Medicine, University of Tennessee; 865 Jefferson, Room 150C, Chandler Building; Memphis, Tennessee 38163. The University of Tennessee is an Equal Opportunity Affirmative Action employer.

NUCLEAR MEDICINE TECHNOLOGIST needed for 600-bed teaching hospital with medical school affiliation. Graduate AMA approved nuclear medicine technology program, or 1 year training experience in Clinical setting, ARRT registry or registry eligible. Contact: Office of employment service, Richland Memorial Hospital, 3301 Harden St. Columbia, S.C. 29203 (803) 765-6271. An Equal Opportunity Employer. M F H.

NUCLEAR MEDICINE RESIDENCY Available. July, 1980. Two year accredited affiliated program including 700 bed VA General Hospital, 500 bed County Hospital and 1,000 bed Air Force Medical Center; and equal opportunity employer. Comprehensive training in basic sciences, laboratory sciences, computer technology, patient care services, and research. Contact: Martin L. Nusynowitz, MD, Division of Nuclear Medicine, University of Texas Health Science Center, San Antonio, Texas, 78284 (512) 691-7265.

NUCLEAR MED TECH-ARE YOU LOOKING for a challenging position in the field of nuclear medicine? If you are registered or registry eligible and need a full time position, then this may be the opportunity you've been looking for. This is a beautiful university community with several lakes and parks in close proximity. Bloomington Hospital is a 314 bed Hospital that services Bloomington and the surrounding areas. If interested please call or write: Bloomington Hospital, 619 W. First St., Bloomington, In. 47401 (812) 336-9535. An Equal Opportunity Employer M/F.

JEFFERSON HOSPITAL NEEDS REGISTERED nuclear medicine technologist for nuclear medicine, and C.T. scans. No weekend work, three day weekend every 3rd week. Good benefits and salary. Send resume to Director of Personnel Jefferson Hospital 1515 West 42nd Ave., Pine Bluff, AR 71603. Equal Opportunity Employer M/F.

NUCLEAR MED TECH. CONSIDER THE many advantages of living and working in beautiful Minneapolis, City of Lakes! Many opportunities easily accessible for cultural events, recreational activities, ongoing education. Position available in medium sized teaching hospital affiliated with University of Minnesota medical school for individual qualified as R.R.T. as well as nuclear medicine. Ultrasound background desired. Contact Personnel Dept., Mount Sinai of Minneapolis, 2215 Park Ave., Minneapolis, MN 55404.

NUCLEAR MEDICINE TECHNOLOGIST Immediate opening in a 150 bed general hospital for an experienced Technician. Located in southern Delaware resort area-State of the art equipment including GE Maxi II with Formatter and Med IV computer using MDS software-strictly imaging department including non-stress Nuclear Cardiology. Wide range of benefits, salary commensurate with experience. Call: Beebe Hospital of Sussex County, Inc., Personnel Department, (302) 645-3336, Lewes, Delaware 19958. An equal opportunity employer.

NUCLEAR MEDICINE TECHNOLOGIST. Exceptional opportunity for registered or eligible nuclear medicine med tech to work in imaging. We are a full service department within a 500 bed general acute care hospital. Salary commensurate with experience. Excellent fringe benefits. Qualified applicants submit resume to: Mercy Hospital Center, Personnel Dept., 6th and University, Des Moines, Iowa 50314.

NUCLEAR MEDICINE TECHNOLOGISTS Chief Imaging Division as well as Staff technologist, 490 active beds community hospital affiliated with CMDNJ (Rutgers Medical School). Performing entire array of imaging procedures including Nuclear Cardiology procedures. Salary negotiable. Submit resume: Dr. L. Zeiger, Chief Nuclear Medicine, Cooper Medical Center, 1 Cooper Plaza, Camden, NJ 08103 (609) 432-2370.

PATHOLOGY-NUCLEAR MEDICINE
 Physician being sought to join practice in a 400
 Bed community hospital. Send Resume to William
 M. Bridger, MD, Baptist Medical Center, 2105 East
 South Boulevard, Montgomery, Alabama 36116.

POSITIONS WANTED

NUCLEAR MEDICINE PHYSICIAN.
 ABNM, ABIM. Experienced and competent in
 all phases of Nuclear Medicine (Imaging, RIA,
 Computers) and Diagnostic Ultrasound. Private
 practice an academic background. Have estab-
 lished several laboratories. Age under 40. Seek
 directorship position with large progressive hos-
 pital, multispecialty clinic or radiology group.
 Write for C.V. and further information. Reply
 Box 906. Society of Nuclear Medicine, 475 Park
 Ave. So., NY, NY 10016.

NUCLEAR PHYSICIAN, CERTIFIED
 ABNM & Radiology. seeks relocation preferably
 in Phila., NJ, Del. area. Medical school hospi-
 tal experience. Reply to Box 1000. Society of
 Nuclear Medicine, 475 Park Ave. South, NY,
 NY 10016.

BOARD CERTIFIED INTERNIST COM-
 pleting University Residency in Nuclear Medi-
 cine July 1980. Age 48. Strong Computer back-
 ground. Seeks position where he can be in charge
 and set his own hours, so that interest in Internal
 Medicine and Computers can be pursued sec-
 ondarily. Reply Box: 1001. Society of Nuclear
 Medicine, 475 Park Ave. New York, NY 10016

MD, PhD, ABNM CERTIFIED, WITH
 various experience, seeks new position, preferab-
 ly in association with one or more other full-
 time nuclear physicians in a teaching hospital.
 Reply: Box 1002, Society of Nuclear Medicine,
 475 Park Ave. So., New York, NY 10016.

FOR SALE

USED OHIO-NUCLEAR SERIES 84 87
 dual Probe rectilinear scanner. Call Collect
 (906) 228-3020

**Perform
 a death-
 defying
 act.**

**Stop
 smoking.**



Give Heart Fund
 American Heart Association

**WHEATON
 ZIPPETTES**

**Better Than
 "The Best"
 For Less**



New, improved Mark III Zippette dispensers are highly resistant to breakage. The borosilicate glass syringe is encased in protective polypropylene. Delivery valves are positioned within the reservoir for added safety. The delivery tip is secured by a rigid platform to eliminate dislodging by accident. Fully adjustable throughout syringe capacity. Five sizes available: 0-0.5 ml, 0-5 ml, 0-10 ml, 0-30 ml, 0-50 ml. Fully autoclavable without disassembly. Available with low profile, anti-tip, safety reservoir of amber glass, or one gallon amber plasti-coted bottle for the 0-30 ml and 0-50 ml sizes. Screw threaded adapters for use with common laboratory containers.

For complete information contact Wheaton Instruments.



**WHEATON
 INSTRUMENTS**

1000 N. 10th Street, Millville, NJ 08332, U.S.A.

RADIOPHARMACIST

The Toronto General Hospital (a teaching hospital of the University of Toronto) has an opening for a suitably qualified Radiopharmacist in the Department of Nuclear Medicine. The position is supervisory in nature and calls for experience in all aspects of Radiopharmacy, including quality control, assay and calibration, chromatography, record keeping and research as well as teaching responsibilities.

Please forward a resume outlining qualifications and work experience to:

Hilja Raun
Employee Relations
101 College Street
Toronto, Ontario
M5G 1L7



Baylor College of Medicine

TEXAS MEDICAL CENTER HOUSTON, TEXAS 77030



NUCLEAR MEDICINE: MAJOR EXPANSION OF ESTABLISHED PROGRAM

OPPORTUNITIES FOR NM PHYSICIANS, MEDICAL SCIENTISTS, SUPERVISORY AND STAFF TECHNOLOGISTS, MEDICAL WRITER

A major expansion of an established program in NM is being developed in conjunction with the opening of a total health care center. The new program has created the need for qualified physicians, medical scientists and technologists to provide NM services for a 2500-bed hospital complex that includes 2 large cardiovascular centers.

Positions are immediately available for:

- (1) 3 NM physicians with clinical expertise in all aspects of nuclear medicine and interest in clinical research
- (2) 2 medical scientists with interest in instrumentation, computer science, and radiation physics
- (3) Several technologists, both staff and supervisory levels, for the imaging and RIA sections
- (4) Medical writer

For information contact John A. Burdine, M.D., Chief, Nuclear Medicine Section, Departments of Internal Medicine and Radiology, 6720 Bertner Avenue, Houston, TX 77030; phone 713/521-2272.

AMERICAN COLLEGE OF NUCLEAR PHYSICIANS

now offering

R.I.A. PROFICIENCY TESTING PROGRAM

B5656-15SA Survey I CORTISOL, DIGOXIN, FOLATE HGH, INSULIN, TBG, TSH, TRI-IODOTHYRONINE, T-4, B-12, T3 UPTAKE
(\$100/yr)

B5656-15SB Survey II same as Survey I + ESTRIOL, FSH, GASTRIN, ALDOSTERONE, DIGITOXIN, TESTOSTERONE, GENTAMYCIN, DILANTIN, HCG, FERRITIN
(\$180/yr)

SHIPPED QUARTERLY

Daily Quality Control Program Also Available.

For information call 202/857-1135 or write:

AMERICAN COLLEGE OF NUCLEAR PHYSICIANS
Suite 700
1101 Connecticut Avenue, N.W.
Washington, D.C. 20036

THIS PROGRAM IS CONDUCTED IN COLLABORATION WITH DADE DIVISION, AMERICAN HOSPITAL SUPPLY CORPORATION

Radiology

NUCLEAR MEDICINE TECHNOLOGIST I

\$1140.91 to \$1422.55

Excellent opportunity with County of Los Angeles for individual with completion of an accredited training course in Nuclear Medicine Techniques—OR—one year's experience performing nuclear medicine technologic procedures under the direction of a qualified physician in a clinical nuclear medicine facility. Paid bonus shift differential. Civil Service benefits.

Call Dave McKee
(213) 226-7855
Los Angeles County/
University of Southern California
Medical Center
Personnel Office Bldg. 22
1200 N. State Street
Los Angeles, CA 90033



Tech It!

Because quality is important to your image ... Check your Products with a Tech Kit! It's the only move to make.

Tech is a quality control testing system which provides a quick, convenient and inexpensive means for determining unbound and free Technetium 99m in the following products:

PYROPHOSPHATE
DIPHOSPHONATE
POLYPHOSPHATE
MDP

PHYTATE
DTPA
MICROSPHERES
HUMAN SERUM ALBUMIN

GLUCOHEPTONATE
SULFUR COLLOID
MACROAGGREGATED ALBUMIN

For more detailed information, contact:



ACKERMAN NUCLEAR, INC.

Pharmaceuticals for Nuclear Medicine
445 W. Garfield Ave.
Glendale, CA 91204, USA
(213) 240-8555

YOU TOLD US TO CUT CORNERS, SO WE CUT CORNERS...



AND ADDED A NEW SIZE.



When you and other healthcare professionals speak about radiation monitoring, we listen. And then we act to provide you with the best personnel dosimetry system available—bar none! At Searle, we believe the personal touch means a great deal.

For example, when you told us you wanted a more comfortable TLD (thermoluminescent dosimeter) ring badge, we redesigned ours with you in mind. Then, we took an extra step and designed a new size for small hands. These smaller, lighter rings can be cold sterilized, will easily fit under surgical gloves, have snag-free rounded corners, and permit free finger movement. That's just part of the custom service you receive with Searle Nuclibadge II.

You also get the most reliable exposure reporting system—a complete, computerized report showing all data on one line for each badge in your facility. The reports meet federal, state, and local regulations, yet they are flexible and can be modified to meet your specific needs. Of course, in case of high exposure, we telephone you immediately.

We also take extra care in adding and deleting personnel. Our toll-free hotline is at your disposal for making changes or asking technical questions, and badges for new employees are on the way to you within 24 hours.

The right Nuclibadge II monitoring badge—whole-body, wrist, ring, or wallet card—is sent in plenty of time each month for distribution to your personnel

who may be exposed to radiation. The wearer's name and ID number appear on each badge, which is color-coded for use during the correct monitoring period.

It's all part of the Searle service—and you can have it now. Call today or write:

SEARLE

Searle Health Physics Services
Unit of Searle Medical Products
2000 Nuclear Drive
Des Plaines, IL 60018

**call toll-free
800/323-6015**

(In Illinois, call collect, 312/635-3387)



Tech It!

Because quality is important to your image ...Check your Products with a Tech Kit! It's the only move to make.

Tech is a quality control testing system which provides a quick, convenient and inexpensive means for determining unbound and free Technetium 99m in the following products:

PYROPHOSPHATE
DIPHOSPHONATE
POLYPHOSPHATE
MDP

PHYTATE
DTPA
MICROSPHERES
HUMAN SERUM ALBUMIN

GLUCOHEPTONATE
SULFUR COLLOID
MACROAGGREGATED ALBUMIN

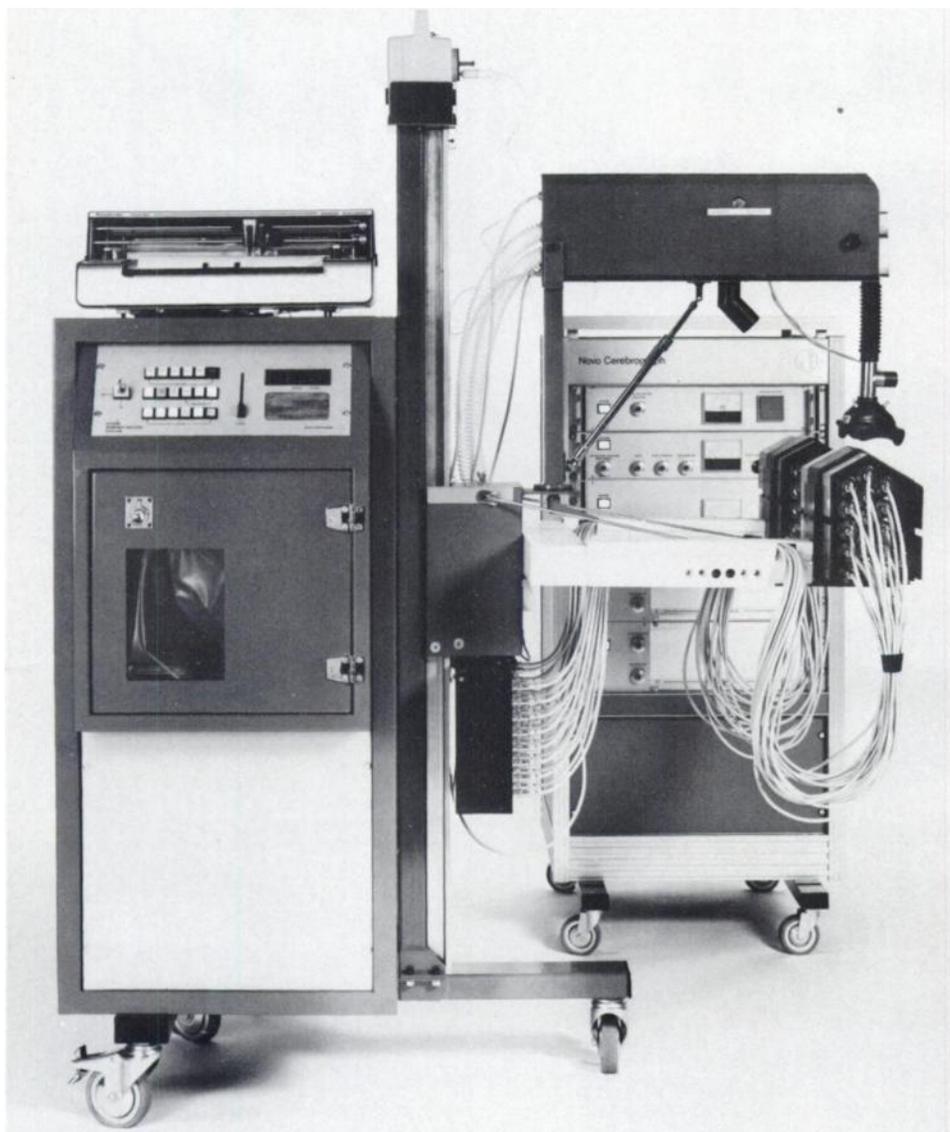
For more detailed information, contact:



ACKERMAN NUCLEAR, INC.

Pharmaceuticals for Nuclear Medicine
445 W. Garfield Ave.
Glendale, CA 91204, USA
(213) 240-8555

A dynamic quantitative study of rCBF



The Novo Cerebrograph gives you dynamic quantitative measurement of regional Cerebral Blood Flow.

Computerized digital and graphical printouts provide on-the-spot data on the functional level of the brain, data that cannot be obtained by other investigative methods.

And the Novo Cerebrograph gives you a choice of three $^{133}\text{Xenon}$ administration techniques: inhalation, intravenous or intracarotid injection.

Using the $^{133}\text{Xenon}$ inhalation method or the intravenous method, a safe and simple measurement of rCBF is obtained. It eliminates the trauma of intracarotid artery puncture. Permits simultaneous bilateral measurements, enabling an unaffected hemisphere to serve as reference for an affected one. Is widely used for research volunteers and on a broad patient spectrum for frequent measurements over prolonged periods.

The $^{133}\text{Xenon}$ intracarotid injection method provides higher resolution, increases accuracy on white matter flow measurements, and is normally combined with a carotid angiogram.

When you buy a Novo Cerebrograph you get a complete system, including a pushbutton Xenon administration system with trap. Optional Xenon Recovery Unit. An air-detector. Up to 32 brain detectors with interchangeable collimators. A mobile detector stand that permits measurements with patients sitting or supine. Nuclear electronics and accumulation interface rack-mounted in cabinet. And your choice of on-line table-top or off-line data calculators and clinically verified proprietary computer programs.

NOVO DIAGNOSTIC SYSTEMS A/S

(formerly Meditronic A/S)

Novo Allé
DK-2880 Bagsvaerd (Denmark)
Phone: (02)982333
Telex: 27116
Cable: Telanovo

Brief summary of Package Insert. Before using, please consult the full Package Insert included in each kit.

Description: Each vial of OSTEOSCAN contains 5.9 mg etidronate disodium, 0.16 mg stannous chloride and 0.56 mg sodium ascorbate as active ingredients. Upon addition of ADDITIVE-FREE sodium pertechnetate Tc^{99m} the etidronate disodium and stannous chloride combine with Tc^{99m} to form a stable soluble complex.

Clinical pharmacology: When injected intravenously, Tc^{99m}-labeled OSTEOSCAN has a specific affinity for areas of altered osteogenesis. Areas of bone which are undergoing neoplastic invasion often have an unusually high turnover rate which may be imaged with Tc^{99m}-labeled OSTEOSCAN. Three hours after intravenous injection of Tc^{99m}-labeled OSTEOSCAN, an estimated 40-50% of the injected dose has been taken up by the skeleton. At this time approximately 50% has been excreted in the urine and 6% remains in the blood. A small amount is retained by the soft tissue. The level of Tc^{99m}-labeled OSTEOSCAN excreted in the feces is below the level detectable by routine laboratory techniques. Tc^{99m}-labeled OSTEOSCAN is also taken up in areas of necrosis and severely injured myocardial cells. Approximately 1.5 hours following intravenous injection 0.01-0.02 percent of the administered dose per gram of tissue is taken up by an acutely infarcted myocardium.

Indications: OSTEOSCAN is a skeletal imaging agent used to demonstrate areas of altered osteogenesis and a cardiac imaging agent used as an adjunct in the diagnosis of acute myocardial infarction. When used as an adjunct in the diagnosis of myocardial infarction the incidence of false negatives has been found to be approximately 14% and false positives about 16%. False negatives may result from failure to observe temporal requirements for good myocardial imaging; false positives may be related to coronary heart disease, left ventricular aneurysms, trauma, repeated cardioversion following coronary by-pass surgery or old myocardial infarcts.

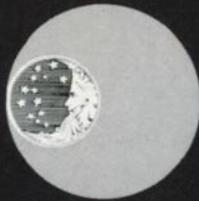
Contraindications: None known.

Warnings: This radiopharmaceutical should not be administered to patients who are pregnant or lactating unless the information to be gained outweighs the potential hazards. 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. The technetium used to tag the product should be routinely tested for molybdenum and aluminum; if an unacceptable level of either is found, the technetium should not be used. Radiopharmaceuticals should be used only by physicians who are qualified by specific training in the safe use and handling of radionuclides produced by nuclear reactor or particle accelerator and whose experience and training have been approved by the appropriate government agency authorized to license the use of radionuclides.

Precautions: As in the use of any other radioactive material, care should be taken to insure minimum radiation exposure to the patient, consistent with proper patient management, and to insure minimum radiation exposure to occupational workers. Bone Imaging: Both prior to and following Tc^{99m}-labeled OSTEOSCAN administration, patients should be encouraged to drink fluids. Patients should void as often as possible after the Tc^{99m}-labeled OSTEOSCAN injection to minimize background interference from accumulation in the bladder and unnecessary exposure to radiation. Cardiac Imaging: Patient's cardiac condition should be stable before beginning the cardiac imaging procedure. If not contraindicated by the cardiac status, patients should be encouraged to ingest fluids and to void frequently in order to reduce unnecessary radiation exposure. Interference from chest wall lesions such as breast tumors and healing rib fractures can be minimized by employing the three recommended projections.

Adverse reactions: None known.

Dosage and administration: The recommended adult dose of Tc^{99m}-labeled OSTEOSCAN is 10-15 mCi. The activity of each dose should be measured by a suitable radiation calibration system just prior to administration. The dose should be given intravenously by slow injection. For optimal results bone imaging should be done 2-4 hours post injection and cardiac imaging 1-1½ hours post injection. The acute myocardial infarct can be visualized from 1-9 days following onset of symptoms with maximum uptake at 2-3 days. It is recommended that three projections of the heart be made (anterior, left anterior oblique and left lateral).



PROCTER & GAMBLE

OSTEOSCAN®

Technetium Tc^{99m} etidronate sodium kit

exceeds MDP in tumor-to-normal-bone ratio

“...in clinical practice tumor visualization is paramount. For this purpose the agent with the highest tumor-to-normal-bone ratio may well be superior.”¹

In a recently completed clinical study comparing Osteoscan and MDP in the same patients, Osteoscan provided a significantly higher tumor-to-normal-bone ratio than MDP.^{2,3} Kinetic studies have shown that Osteoscan is released from normal bone into the blood, permitting good differentiation between tumor and normal bone, whereas MDP remains bound to the normal bone longer.^{2,3}

Osteoscan is also useful as an adjunct in the diagnosis of acute myocardial infarction.

For additional information, call or write Procter & Gamble, Professional Services, P.O. Box 85507, Cincinnati, Ohio 45201, (513) 977-5547.

References:

1. Fogelman, I. et al: J. Nucl. Med. 20:98, 1979.
2. Khedkar, N. et al: Presented at the 1978 Annual Meeting, SNM, Southeastern chapter.
3. Arnold, J. S.: Kinetic Analysis of Bone Imaging Agents, Proceedings of First International Symposium on Radiopharmacology, Innsbruck, Austria, 1978 (to be published).

YOU TOLD US TO CUT CORNERS, SO WE CUT CORNERS...



AND ADDED A NEW SIZE.

When you and other healthcare professionals speak about radiation monitoring, we listen. And then we act to provide you with the best personnel dosimetry system available—bar none! At Searle, we believe the personal touch means a great deal.

For example, when you told us you wanted a more comfortable TLD (thermoluminescent dosimeter) ring badge, we redesigned ours with you in mind. Then, we took an extra step and designed a new size for small hands. These smaller, lighter rings can be cold sterilized, will easily fit under surgical gloves, have snag-free rounded corners, and permit free finger movement. That's just part of the custom service you receive with Searle Nuclibadge II.

You also get the most reliable exposure reporting system—a complete, computerized report showing all data on one line for each badge in your facility. The reports meet federal, state, and local regulations, yet they are flexible and can be modified to meet your specific needs. Of course, in case of high exposure, we telephone you immediately.

We also take extra care in adding and deleting personnel. Our toll-free hotline is at your disposal for making changes or asking technical questions, and badges for new employees are on the way to you within 24 hours.

The right Nuclibadge II monitoring badge—whole-body, wrist, ring, or wallet card—is sent in plenty of time each month for distribution to your personnel

who may be exposed to radiation. The wearer's name and ID number appear on each badge, which is color-coded for use during the correct monitoring period.

It's all part of the Searle service—and you can have it now. Call today or write:

SEARLE

Searle Health Physics Services
Unit of Searle Medical Products
2000 Nuclear Drive
Des Plaines, IL 60018

**call toll-free
800/323-6015**

(In Illinois, call collect, 312/635-3387)

A NEW DOSE CALIBRATOR WITH A MEMORY BETTER THAN YOURS.

New Micro Cal, from Picker, does everything your present isotope calibrator does — and everything you wish it did.

Micro Cal automates dose calibration. A keyboard operated micro-processor memory stores calibration factors for up to 96 radioisotopes. And an exclusive prompting panel lights up to provide the technologist with easy step-by-step instructions for each setup. Micro Cal calculates dosage, correcting for isotope decay and the time the dose is to be administered, while its printout accessory gives you a hard copy record. Micro Cal figures dosage fast and makes error virtually impossible.

Since every phase of a nuclear medicine diagnostic process begins with correct dosage, Micro Cal is the beginning of a better diagnosis. For more information, call your Picker representative or write: Picker Corporation, 12 Clintonville Rd., Northford, CT 06472, or Picker International, 595 Miner Rd., Highland Hts., OH 44143.

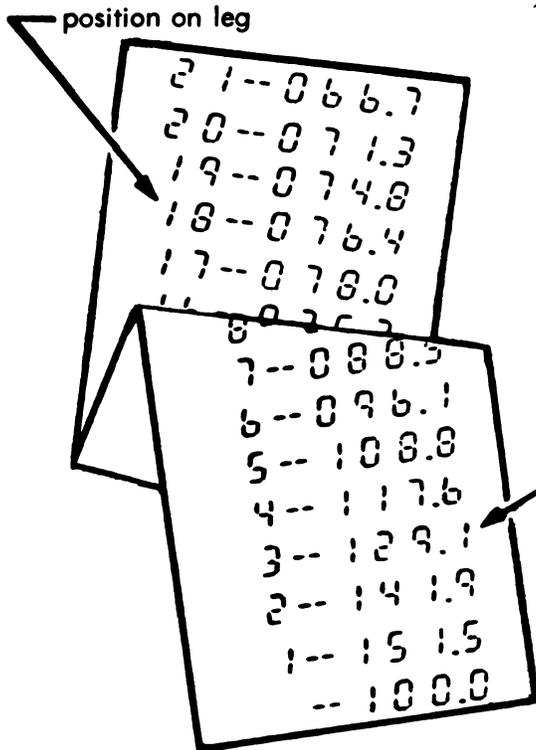
**THE
IMAGE
OF
VALUE.**

PICKER®
ONE OF THE CIT COMPANIES



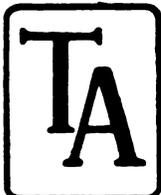
thrombosis

detection of DVT using I-125 fibrinogen



Print Out
1 1/4 inch wide

- Direct **digital percent** readout
- Printout **saves time**
- Bedside operation
- Right angle probe minimizes patient disturbance
- Controls are on probe
- Operator **error protection**
- Versatile — settable for other isotopes



TECHNICAL ASSOCIATES

7051 ETON AVE. • CANOGA PARK, CA. 91303 (213) 883-7043

DWTT?

Surgeons ask... Nuclear Medicine answers.

The
IBRIN System

Certain *Excellent correlation
with venography*

Safe *Non-invasive*

Simple *Single I.V. injection plus
convenient monitoring procedure*

IBRIN[®] Fibrinogen I 125

- New one and five dose kits shipped from stock, Monday through Friday
- Vigorously screened single-donor product
- Lyophilized for convenient storage and stability
- Initial monitoring can be performed from 1-3 hours after injection of Ibrin[®]
- Serial monitoring for up to 7 days after one injection

IBRINATOR[™] Portable Radioisotope Monitor

- Delivers statistically valid data
- Engineered to help eliminate procedural errors
- LED display plus hard copy printout
- Pushbutton controls for speed and convenience
- Portable, NiCad Battery operation
- Variable time mode speeds monitoring
- Angled Probe for monitoring convenience and patient comfort

Procedural and clinical utility educational programs available. For more information, write or call:



Amersham

AMERSHAM CORPORATION
A SUBSIDIARY OF THE RADIOCHEMICAL CENTRE

2636 S. Clearbrook Dr., Arlington Heights, IL 60005
312/593-6300 or 800/323-0668 (Toll free)

In Canada

505 Iroquois Shore Rd., Oakville, ONT L6H 2R3
416/842-2720 or 800/268-5061 (Toll free)



INDICATIONS

IBRIN is indicated for use in prospective studies for the early detection and subsequent monitoring of developing deep-vein thrombosis and in diagnostic studies for the detection of established thrombosis in the legs.

- A. The IBRIN (Fibrinogen I 125) test is indicated in patients with signs and/or symptoms suggestive of deep-vein thrombosis with or without associated pulmonary embolism or in patients with pulmonary embolism, with or without evidence of peripheral deep-vein thrombosis. In patients with established, old or "inactive" thrombi, the test will be positive only if radionuclide-labeled fibrin deposition occurs in a sufficient quantity to allow detection. Its use is not contraindicated in patients on anticoagulants.
- B. The IBRIN (Fibrinogen I 125) test is indicated for the detection of thrombus formation in patients undergoing major orthopedic or other surgical procedures, myocardial infarction, pulmonary disease, malignant disease and other medical conditions known to predispose to thromboembolism.

CONTRAINDICATIONS

There are no known contraindications to the use of IBRIN. However, it should be noted that the iodides given to block the uptake of ^{125}I by the thyroid gland are contraindicated in patients with a known sensitivity to the iodides.

WARNINGS

This radiopharmaceutical should not be administered to patients under 18 years of age, to patients who are pregnant, or to patients who are lactating, unless the information to be gained outweighs the potential risk.

Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of child bearing capability should be performed during the first few (approximately 10) days following the onset of menses. Nursing mothers should substitute formula feeding after the administration of Fibrinogen I 125.

Extraordinary precautions have been taken in the preparation of IBRIN (Fibrinogen I 125) to eliminate the possible transmission of hepatitis. Nevertheless, the remote risk of hepatitis associated with the administration of Fibrinogen I 125 cannot be entirely eliminated. The finding of viral hepatitis in any patient up to six months after the administration of IBRIN should be reported to Amersham for further evaluation, since there are numerous possible sources of hepatitis infection.

PRECAUTIONS

Care should be taken to insure minimum radiation exposure to the patient, consistent with proper patient management, and to insure minimum radiation exposure to occupational workers.

This drug contains radioactive materials which must be handled only by qualified personnel in conformity with Nuclear Regulatory Commission, agreement state, or other appropriate government regulations. Care must be taken to avoid excessive exposure to its radiation. Shielding or equivalent radiation protective measures must be used.

This product is prepared from units of human plasma which have been tested using RIA methods and found non-reactive for Hepatitis B surface antigen. Approved detection methods are not sensitive enough to detect all infectious units of blood or all possible cases of hepatitis. However, IBRIN has been prepared from single donor plasma and has been injected into recipients without incidence of fibrinogen related Hepatitis B as evidenced by periodic physical examination and laboratory testing (liver profile, CBC, and Hepatitis B surface antigen and antibody by radioimmunoassay) of the recipients.

There are a number of clinical circumstances requiring consideration in the interpretation of the test results. (See complete Package Insert.)

Fibrinogen I 125 scanning should preferably be performed prior to venography if both procedures are contemplated, since venography may cause increases in count rate making interpretation of post-venography monitoring data difficult.

Adequate reproduction studies on animals have not been performed to determine whether this drug affects fertility in males or females, has teratogenic potential, or has other adverse effects on the fetus. Fibrinogen I 125 should be used in pregnant women only when clearly needed.

ADVERSE REACTIONS

There has been no reported incidence of allergic or anaphylactic reactions following the intravenous administration of IBRIN.

DIAGNOSTIC ISOTOPES MDP KIT TECHNETIUM Tc 99m MEDRONATE KIT

INDICATIONS AND USAGE

Technetium Tc 99m Medronate may be used as a bone imaging agent to delineate areas of altered osteogenesis.

CONTRAINDICATIONS

None known.

WARNINGS

This class of compound is known to complex cations such as calcium. Particular caution should be used with patients who have, or who may be predisposed to, hypocalcemia (i.e., alkalosis).

This radiopharmaceutical drug product should not be administered to children, to pregnant women, or to nursing mothers, unless the expected benefit to be gained outweighs the potential risk.

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.

PRECAUTIONS

General

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

To minimize radiation dose to the bladder, the patient should be encouraged to void when the examination is completed and as often thereafter as possible for the next 4-6 hours.

This preparation contains no bacteriostatic preservative.

Technetium Tc 99m Medronate should be formulated within six (6) hours prior to clinical use.

Pregnancy Category C

Adequate reproductive studies have not been performed in animals to determine whether this drug affects fertility in males or females, has teratogenic potential, or has other adverse effects on the fetus. Technetium Tc 99m Medronate should be used in pregnant women only when clearly needed.

Nursing Mothers

It is not known whether this drug is excreted in human milk. As a general rule nursing should not be undertaken while a patient is on the drug since many drugs are excreted in human milk.

Pediatric Use

Safety and effectiveness in children have not been established.

ADVERSE REACTIONS

No adverse reactions specifically attributable to the use of Technetium Tc 99m Medronate have been reported.

DOSAGE AND ADMINISTRATION

The suggested dose range for i.v. administration, after reconstitution with oxidant-free sodium pertechnetate Tc 99m Injection, to be employed in the average patient (70 kg) is:

Bone imaging: 10-20 mCi Technetium Tc 99m Medronate

Scanning post-injection is optimal at about 1-4 hours.

Slow administration of the drug over a period of 30 seconds is recommended.

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

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.

HOW SUPPLIED

Diagnostic Isotopes' Technetium Tc 99m Medronate Kit is supplied as a sterile, pyrogen-free kit containing 10 vials.

Each 10 ml vial contains 10 mg medronic acid, 0.17 mg (minimum) stannous chloride (maximum stannous stannic chloride 0.29 mg), and 2 mg ascorbic acid. The pH has been adjusted to 4-8 with either HCl or NaOH prior to lyophilization. Following lyophilization, the vials are sealed under a nitrogen atmosphere.



2636 S. Clearbrook Dr., Arlington Heights, IL 60005
312/364-7100 or 800/323-0668 (Toll free)

In Canada

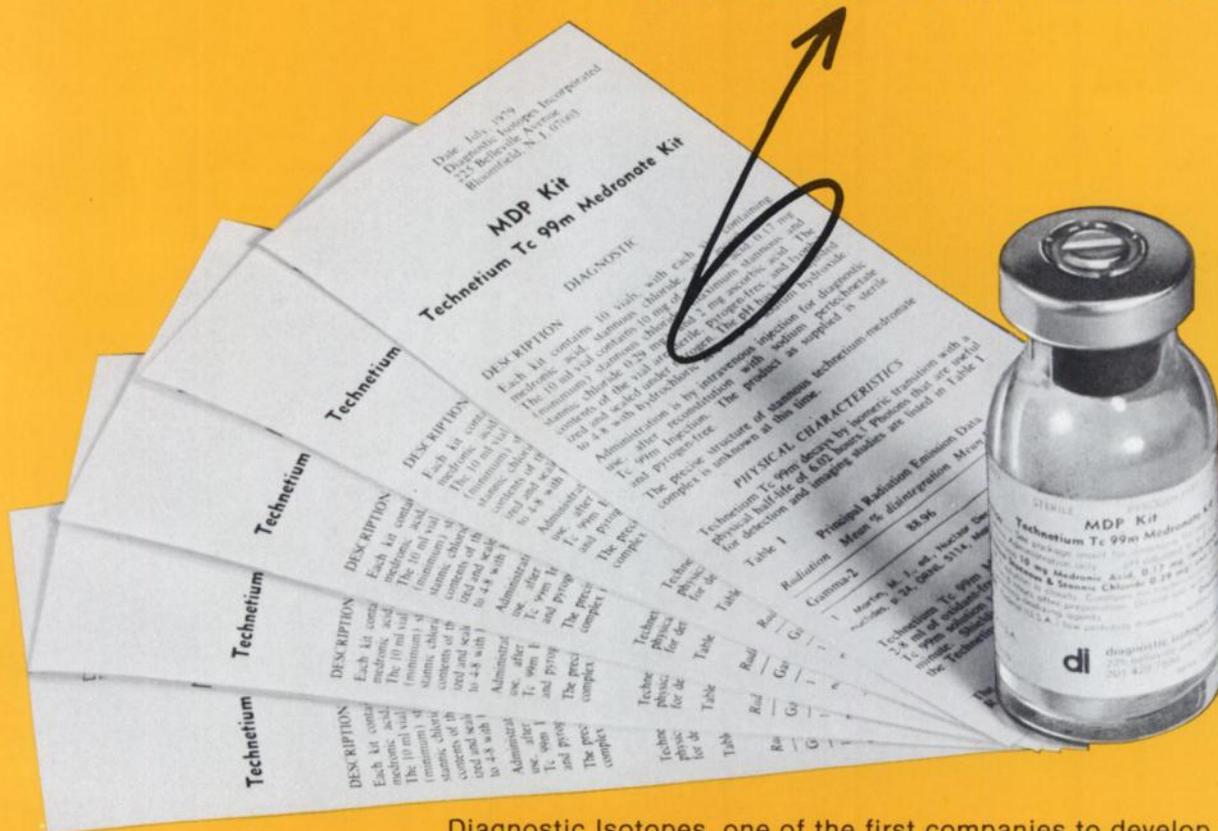
505 Iroquois Shore Rd., Oakville, ONT L6H 2R3
416/842-2720 or 800/268-5061 (Toll free)

For Superior Bone Images*

DIAGNOSTIC ISOTOPES MDP

(Technetium Tc 99m Medronate Kit)

**Our Formulation Is Not The Same!
Only Diagnostic Isotopes MDP
Contains Ascorbic Acid**



Diagnostic Isotopes, one of the first companies to develop a Technetium labeled bone imaging agent, is proud to announce its new MDP Kit. Physicians who are acquainted with D.I. quality and service will welcome this latest addition to our product line. As with all D.I. reagents, MDP is conveniently packaged in 10 multi-dose vial kits which may be stored at room temperature.

For pricing information and prompt service, please call either of the numbers listed below.



di diagnostic isotopes incorporated

225 Belleville Avenue, Bloomfield, NJ 07003
Toll free (800)631-1260, (201)429-7590, Telex 133393 Diagnostic BLFD

*G. Subramanian, et al: Technetium-99m Methylene Diphosphonate — A superior agent for skeletal imaging. Comparison with other Technetium complexes. J. Nucl Med 16:74, 1975

See Opposite Page For Summary Of Prescribing Information

**From 1 km the earth is flat.
From 10 km the earth is flat.
From 100 km the earth is round...
...at last.**



**TCK-15-S
has the widest
diagnostic spectrum...
at last.**

Many hepatobiliary agents are fine for bilirubin levels up to 10 mg/100 ml. But only TCK-15-S allows diagnosis in icteric patients where the bilirubin level may be as high as 25 mg/100 ml.

SORIN allows "the earth to be seen as round".

TCK-15-S is a kit for labelling p-butyl Iminodiacetic Acid (IDA) with Tc-99m and is characterised by very low renal excretion and negligible bilirubin dependency.

NOT AVAILABLE IN U.S.A.

INTERNATIONAL CIS
IMMEUBLE P 3 "INTERNATIONAL"
2, RUE STEPHENSON
78181 ST. QUENTIN YVELINES CEDEX - FRANCE
Tel. (33) 1-0430009 - Telex 698226



SUBSIDIARY OF: COMMISSARIAT A L'ENERGIE ATOMIQUE - FRANCE
LABOR. DES PRODUITS BIOMEDICAUX - DRIS
B.P. n. 21 - 91190 GIF-SUR-YVETTE
Tel. 941.80.00 - Telex 692431

SORIN BIOMEDICA - ITALIA
GRUPPO RADIOCHIMICA
13040 SALUGGIA (VERCELLI)
Tel. (0161) 48155 - Telex 200064



The Flexible Concept in Gamma Imaging Systems

RAYTHEON'S **STEP TWO**

AN ADVANCED MICROPROCESSOR-BASED ANALOG IMAGING DEVICE

FEATURES

- **MULTIPLE LENS OPTICS** Four lens distributor, imaging the output of a display form CRT on 8" x 10" film, dot size 0.010" for superb image quality.
- **IN-LINE CONFIGURATION** No beam-bending mirrors to introduce distortion or unsharpness.
- **KEYBOARD DATA ENTRY** Familiar calculator type operation for easy entry of maximum data.
- **FULL NUMERICS IMAGING** Permanent record of hospital name, date, time of day, patient number, counts/frame, time/frame, frame number.
- **AUTOMATIC EXPOSURE CONTROL** Precise film density control via computer integration of these factors: format size, type of study, CRT drift, counts or preset ID.
- **DUAL INTENSITY PROVISION** Choice of two intensities—at fixed differential—offers improved detail perception.
- **BROAD FORMAT SELECTION** You may choose from these 9 . . . 4, 6, 8, 12, 16, 20, 24, 30, 36 frames, for ideal image size/organ matching.
- **EASY FRAME POSITIONING** Permits advancing or backspacing frames for mixing and matching frame size. Allows the collection of a complete patient study on a single film.
- **16 DIGIT LED READOUT** High visibility indicators for reading preset time, preset counts, information density, running counts, patient number, frame number, format size, format location.



RAYTHEON
NUCLEAR
DIAGNOSTICS

70 RYAN STREET, STAMFORD CT. 06907, (203) 324-5803

1-800-243-9058



Back to Basics!

The Assayer 1 by Radx

The never ending struggle for product popularity often leads a manufacturer to add gadgets. It's called "one-upmanship." We sometimes lose sight of what YOU, the user, wants.

By customer demand, Radx has gone "Back to Basics" and developed the Assayer 1, a simple dose calibrator, a reliable dose calibrator, an economical dose calibrator.

The return to basics does not require a

return to the 1960's technology. The Assayer 1 is microprocessor controlled, totally solid state, with a method of isotope selection way ahead of its time (an optical scanner) which is so precise, reproducible, and reliable that it will soon be copied.

It is not a gadget, it calibrates doses accurately, with precision and unprecedented reliability. It's the Assayer 1—\$2950.

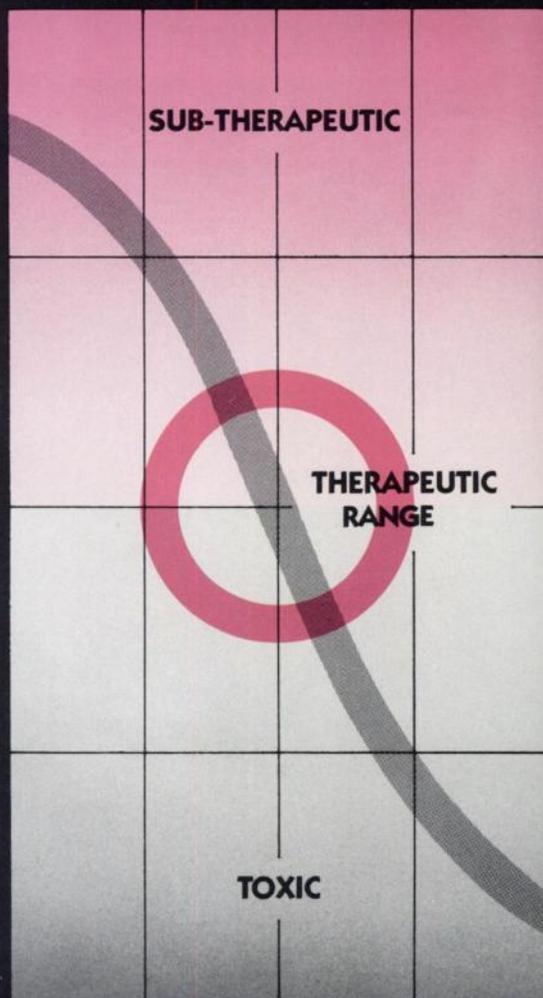
Call today for the last dose calibrator you'll ever own.

RADX

P.O. Box 19164 • Houston, Texas 77024 • (713) 468-9628

Zero in

with seven
[¹²⁵I] RIA
drug screening
kits from
Clinical Assays



DIGITOXIN
DIGOXIN
GENTAMICIN
PHENOBARBITAL
PHENYTOIN
THEOPHYLLINE
TOBRAMYCIN



CLINICAL ASSAYS

DIVISION OF TRAVENOL LABORATORIES, INC.

620 Memorial Drive • Cambridge, Mass. 02139

(617) 492-2526 • TWX: (710) 320-6460

Toll free: (800) 225-1241

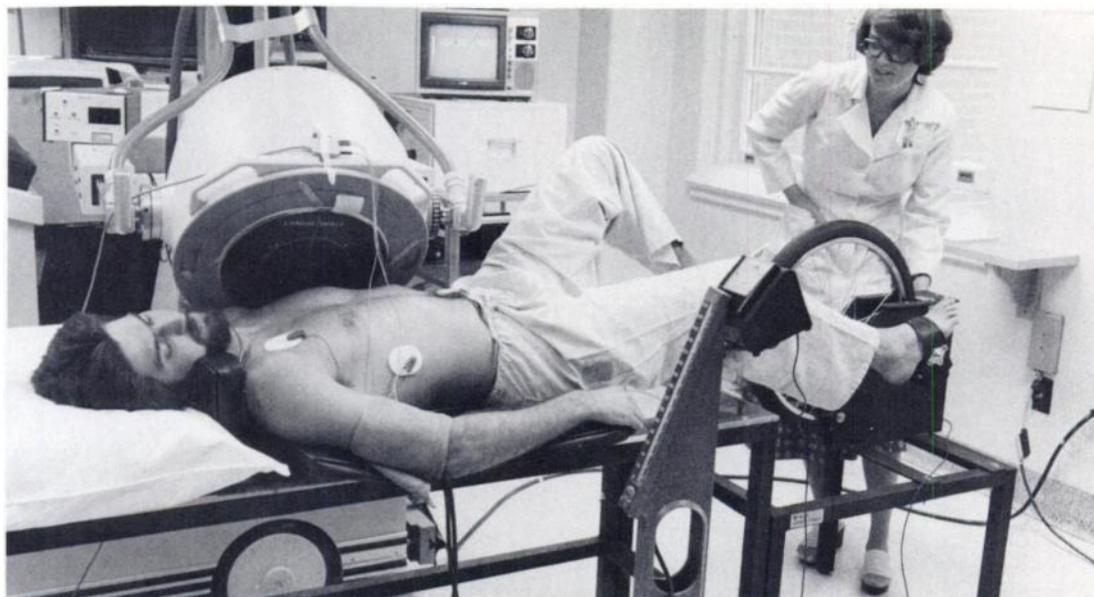
In Mass: (617) 492-2526

For other worldwide locations please contact:

International Sales Department, Clinical Assays, Cambridge, Mass. 02139

Complete directions for use are provided with each product. These directions should be read and understood before use. Particular attention should be paid to all warnings and precautions. Additional performance data are available. Should you have any questions, contact your Clinical Assays representative.

THE O'NEILL STRESS SYSTEM



...DESIGNED EXPRESSLY FOR NUCLEAR CARDIOLOGY
...DESIGNED FOR HEAVY DUTY TROUBLE-FREE USE!
...DESIGNED FOR THE COST-CONSCIOUS BUYER!

O'NEILL ENTERPRISES 221 FELCH ST. ANN ARBOR MICHIGAN 48103 (313) 973-2335

INDEX TO ADVERTISERS

ACKERMAN NUCLEAR INC.
 Glendale, CA 54A, 63A
 ADAC LABORATORIES
 Sunnyvale, CA 34A,35A
 AGFA-GEVAERT REX, INC.
 White Plains, NY 40A,41A
 AMERSHAM CORP.
 Arlington Heights, IL 69A,70A
 AMR CORP.
 Milford, CT 20A
 ATOMIC PRODUCTS
 Center Moriches, NY 14A
 BRATTLE INSTRUMENT
 Cambridge, MA IBC
 CAPINTEC, INC.
 Montvale, NJ 1115
 CIS RADIOPHARMACEUTICALS
 Bedford, MA 49A
 CLINICAL ASSAYS
 Cambridge, MA 75A
 DIAGNOSTIC BIOCHEMISTRY
 San Diego, CA 9A
 DIAGNOSTIC ISOTOPIES
 Bloomfield, NJ 70A,71A
 DUNN INSTRUMENTS
 San Francisco, CA 58A
 EASTMAN KODAK COMPANY
 Rochester, NY 36A,37A
 ELSCINT INC.
 Hackensack, NJ 28A
 ENGINEERING DYNAMICS
 Lowell, MA 15A
 G.E. MEDICAL SYSTEMS
 Milwaukee, WI 52A

HEALTH PHYSICS ASSOC.
 Northbrook, IL 12A
 HUMANETICS, INC.
 Carrollton, TX 20A
 INTERNATIONAL CIS
 St. Quentin Yvelines Cedex, France 38A
 INSTRUMENTATION CAMERA, INC.
 Bayshore, NY 42A
 KEWAUNEE SCIENTIFIC EQUIPMENT CORP.
 Adrian, MI 42A
 MALLINCKRODT, INC.
 St. Louis, MO 29A,30A
 MATRIX, INC.
 Norwood, NJ 47A
 MEDI-PHYSICS, INC.
 Arlington Heights, IL IFC,1A
 MEDI-RAY, INC.
 Tuckahoe, NY 59A
 NEW ENGLAND APPLIED RESEARCH
 Natick, MA 39A
 NEW ENGLAND NUCLEAR
 Boston, MA 4A,43A,44A,45A,46A,
 77A,78A,79A,80A
 NOVO DIAGNOSTIC SYSTEMS
 Bagsvaerd, Denmark 64A
 NUCLEAR ASSOCIATES
 Carle Place, NY 16A
 NUCLEAR MEDICAL SYSTEMS
 Newport Beach, CA 11A,13A,15A,17A
 NUCLEAR PACIFIC
 Seattle, WA 10A
 OHIO-NUCLEAR
 Solon, OH 50A,51A

O'NEILL ENTERPRISES
 Ann Arbor, MI 13A,76A
 PICKER CORP.
 Cleveland, OH 18A,19A,67A
 POLAROID
 Cambridge, MA 55A,56A,57A
 PROCTOR & GAMBLE CO.
 Cincinnati, OH 65A
 RADIOCHEMICAL CENTRE
 Amersham, England 53A
 RADX CORPORATION
 Houston, TX 8A,74A
 RAYTHEON COMPANY
 Burlington, MA 73A
 SEARLE HEALTH PHYSICS
 Des Plaines, IL 66A
 SEARLE RADIOGRAPHICS
 Des Plaines, IL 31A,32A,33A
 SNM PLACEMENT
 New York, NY 60A,61A,62A
 SORIN BIOMEDICA
 Vercelli, Italy 21A,72A
 E.R. SQUIBB & SONS, INC.
 Princeton, NJ 6A,26A,27A
 TECHNICAL ASSOCIATES
 Canoga Park, CA 68A
 TOSHIBA MEDICAL SYSTEMS
 Carson, CA 48A
 UNION CARBIDE CORPORATION
 Tuxedo, NY 3A
 UNION CARBIDE IMAGING SYSTEMS
 Norwood, MA 22A,23A,24A,25A,BC
 WHEATON SCIENTIFIC
 Millville, NJ 61A

For the past year,
we've been showing you why

OSTEOLITE™

Technetium Tc 99m Medronate Sodium Kit (MDP)

should be your department's
bone imaging agent.

OSTEOLITE bone imaging in metabolic disease
The superior technique is:

"The bone scan is a more sensitive indicator of abnormal metabolic activity than the X-ray."



The superior agent:
OSTEOLITE
Technetium Tc 99m Medronate Sodium Kit (MDP)
New England Nuclear

OSTEOLITE bone imaging in osteoporosis
The superior technique is:

"The bone scan may be the only technique capable of locating sites of suspected or unsuspected (bone) trauma."



The superior agent:
OSTEOLITE
Technetium Tc 99m Medronate Sodium Kit (MDP)
New England Nuclear

OSTEOLITE bone imaging in oncology
The superior technique is:

"Perhaps the greatest contribution of bone imaging is its superiority over conventional radiography in the detection of metastatic bone tumors."



The superior agent:
OSTEOLITE
Technetium Tc 99m Medronate Sodium Kit (MDP)
New England Nuclear

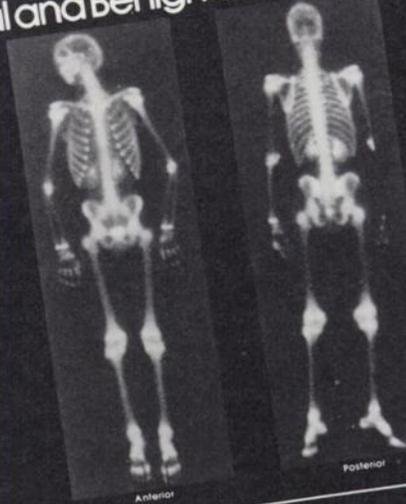
Now you can
show your
referring
physicians with...

OSTEOLITETM

Technetium Tc 99m Medronate Sodium Kit (MDP)

Radioisotope Bone Imaging

Normal and Benign Osseous Variants



Normal anterior and posterior studies in a young male adult



Post radiation therapy to thorax. Bone uptake is decreased due to bone marrow destruction and decreased blood flow.



Six months post laminectomy Fusion of L1, 2, 3.

Primary hyperparathyroidism. Note the increased calvarial uptake.



Secondary hyperparathyroidism in patient with history of renal transplant and steroid medication. Primary sites of osteitis associated with increased parathyroid hormone production include the skull, ends of the clavicles, and hands. 5y and 10y have reported that bone scans in renal patients with secondary hyperparathyroidism typically show increased activity in the clavicular, mandibular, acromioclavicular, vertebral, sternal, vertebral, distal ends of long bones, and the phalanges and metacarpals.



Stress fractures in young male jogger showing increased uptake in lower third of left tibia and midportion of right tibia.



Scoliosis of thoracic and upper lumbar spine. Increased activity in lower thoracic and upper lumbar spine represents degenerative changes secondary to scoliosis. Kyphotic scoliosis is most commonly due to osteoporosis, but may be associated with one of the neurogenic kyphoscolioses. Associated with one of the neurogenic kyphoscolioses.

Transplant with aseptic necrosis. A posttransplantation, up to a third of patients have been reported to have complaints. Avascular necrosis may affect the hip and shoulder joints, and the



Paget's disease with markedly increased activity in the entire left humerus - conforming to the shape - acclipt, thoracic and lumbar spine, and pelvis. Proceeding from an early osteolytic phase dominated by bone resorption and hyperostotic formation. Involved progress to hard, dense sclerotic formation. Cortex bone shows enlargement, irregularly widened cortex and increased density. The pelvic bones are most commonly involved, followed by the femur, skull and tibia.



Distal activity represents increased blood flow secondary to primary

Hypertrophic pulmonary osteoarthropathy showing symmetric, increased uptake along long bones. Hypertrophic osteoarthropathy is typically characterized by osteostrophic inflammation. New bone formation on digital clubbing. This disorder may affect the distal ends of long bones of the wrist and ankle and the distal ends of the metacarpals and metatarsals. It may be associated with primary lung cancer, chronic suppurative pulmonary disease, cyanotic cardiac disease.



Fibrous dysplasia. In this disorder, fibrous tissue replaces normal bone. Fibrous dysplasia usually affects craniofacial bones and ribs. Polyostotic lesions may occur in any bone, with frequent involvement of the lower extremities. The typical radiologic appearance is that of a radiolucent area with smooth borders and focal cortical thinning.



Maffucci's syndrome - multiple enchondromatosis. In enchondromatosis the failure to absorb hypertrophic growth plate cartilage results in disorderly masses of cartilage located in the metaphyses of long bones, and the pelvis, ribs, and the sternum and skull are rarely involved. The association of enchondromatosis and cavernous hemangiomas in soft tissue is known as Maffucci's syndrome.

Osteoid osteoma of left tibia. Osteoid osteoma commonly occurs in the long bones of children and young adults. The x-ray characteristically shows peripheral radiolucency. The central lesion consists of a small nodule of highly vascular connective tissue in which varying amounts of osteoid have been deposited.

...this new wall chart

By now, most nuclear medicine specialists have seen first-hand the reasons why more bone scans are performed with OSTEOLITE

- **most rapid blood clearance**¹
- **lowest soft tissue activity**^{1,2}
- **highest target-to-background differential**³
- **convenient storage and preparation**

New England Nuclear can provide you with a giant (24 x 37 inch) wall chart that shows your referring physicians the clinical appearance of OSTEOLITE images in patients with commonly seen normal and benign osseous variants. This wall chart, compiled from OSTEOLITE images provided by leading practitioners, clearly illustrates a wide range of findings, with a brief discussion of each condition.

To find out how you may receive your copy of this attractive and educational wall chart, just fill out and mail the reply card below, or ask your NEN representative on his next visit.

And to keep getting outstanding bone images, keep using OSTEOLITE!

References:

1. Subramanian G et al: *J Nucl Med* **16:744**, 1975
2. Forstrom L et al: Data on file at New England Nuclear, Medical Diagnostics Division, North Billerica, MA
3. Davis MA, Jones AG: *Sem Nucl Med* **6:19**, 1976

OSTEOLITE™

Technetium Tc 99m Medronate Sodium Kit (MDP)



I'd like information on how to obtain the OSTEOLITE wall chart.

Name.....

Title.....

Institution.....

Address.....

City..... State.....

Zip.....

Please see following page for full prescribing information.



OSTEOLITE™

October 1977

Technetium Tc 99m Medronate Sodium Kit (Formerly Known as MDP)

DESCRIPTION: New England Nuclear's OSTEOLITE™ Technetium Tc 99m Medronate Sodium Kit (formerly known as MDP), is supplied sterile and non-pyrogenic in lyophilized kit form suitable for reconstitution with sodium pertechnetate Tc 99m to form a diagnostic skeletal imaging agent for intravenous administration. Each vial contains 10mg medronate disodium and 0.85mg stannous chloride dihydrate; pH is adjusted to between 7.0-7.5 with hydrochloric acid and/or sodium hydroxide solution. The contents of the vial are lyophilized and stored under nitrogen.

PHYSICAL CHARACTERISTICS

Technetium Tc 99m decays by isomeric transition with a physical half-life of 6.02 hours. (SOURCE: Martin, M. J. Nuclear Data Project, Oak Ridge National Laboratory, March, 1976) Photons that are useful for imaging studies are listed in Table 1.

Table 1. Principal Radiation Emission Data—
Technetium Tc 99m

Radiation	Mean %/ Disintegration	Mean Energy (keV)
Gamma-2	88.96	140.5

To facilitate correction for physical decay of Technetium Tc 99m, the fractions of initial activity that remain at selected intervals after the time of calibration are shown in Table 2.

Table 2. Physical Decay Chart:
Technetium Tc 99m Half-Life 6.02 Hours

Hours	Fraction Remaining	Hours	Fraction Remaining
0*	1.000	8	.398
1	.891	9	.355
2	.794	10	.316
3	.708	11	.282
4	.631	12	.251
5	.562	18	.126
6	.501	24	.063
7	.447		

*Calibration Time

EXTERNAL RADIATION

The specific gamma ray constant for Technetium Tc 99m is 0.8R/mCi-hr. at 1cm. The half value layer is 0.2mm of Pb. To facilitate control of radiation exposure from millicurie amounts of Technetium Tc 99m, the use of a 6.35mm thick standard radiation elution lead shield will attenuate the radiation emitted by a factor greater than 10⁻⁴.

Table 3. Radiation Attenuation By Lead Shielding

Shield Thickness (Pb)mm	Coefficient of Attenuation
0.2	0.5
0.95	10 ⁻¹
1.8	10 ⁻²
2.7	10 ⁻³
3.6	10 ⁻⁴
4.5	10 ⁻⁵
5.4	10 ⁻⁶
6.3	10 ⁻⁷

CLINICAL PHARMACOLOGY: Upon intravenous injection, Technetium Tc 99m OSTEOLITE exhibits a specific affinity for areas of altered osteogenesis. In humans, blood levels fall to 4-10% of the injected dose by two hours post-injection and to 3-5% by three hours. During the first 24 hours following its administration in patients with normal renal function, 50-75% of the radioactivity is excreted into the urine and less than 2% of the injected dose remains in the vascular system.

Uptake of the Technetium Tc 99m in bone appears to be related to osteogenic activity and to skeletal blood perfusion. The deposition in the skeleton is bilaterally symmetrical, with increased accumulation in the axial structure as compared to the appendicular skeleton. There is increased activity in the distal aspect of long bones as compared to the diaphyses. In pediatric patients, in whom the epiphyseal centers are still open, there is more marked accumulation of the radiopharmaceutical in the distal aspects of long bones than is seen in adults in whom the epiphyseal centers are closed. Localized areas of abnormal accumulation of the radiopharmaceutical may be seen in primary skeletal malignancies, metastatic malignancies to bone, acute or chronic osteomyelitis, arthritides, recent fractures, areas of ectopic calcification, Paget's disease, regional migratory osteoporosis, areas of aseptic necrosis and, in general, any pathological situation involving bone in which there is increased osteogenic activity or localized increased osseous blood perfusion. Since increased osteogenic activity and localized increased osseous blood perfusion are not usually present in chronic bone diseases, bone imaging agents, in general, are not effective in detecting such diseases. Localized areas of decreased accumulation of the radiopharmaceutical may be noted in areas of bone which have received localized fields of external radiation or to which blood flow has been interrupted. OSTEOLITE has also been noted to accumulate in areas of acute myocardial infarction from one to fourteen days after the pathologic event.

INDICATIONS AND USAGE: Technetium Tc 99m OSTEOLITE may be used as a bone imaging agent to delineate areas of altered osteogenesis.

CONTRAINDICATIONS: None known.

WARNINGS: The contents of the OSTEOLITE vial are intended only for use in the preparation of Technetium Tc 99m medronate sodium and are NOT to be directly administered to the patient. Ideally, examinations using radiopharmaceuticals—especially those elective in nature—of women of childbearing capability should be performed during the first ten days following the onset of menses.

PRECAUTIONS: A thorough knowledge of the normal distribution of intravenously administered Technetium Tc 99m medronate sodium is essential in order to accurately interpret pathologic studies.

Technetium Tc 99m medronate sodium, as well as any radioactive agent, must be handled with care. Once sodium pertechnetate Tc 99m is added to the kit, appropriate safety measures should be used to minimize external radiation exposure to clinical personnel. Care should also be taken to minimize radiation exposure to patients in a manner consistent with proper patient management.

The Technetium Tc 99m labeling reaction involved in preparing Technetium Tc 99m medronate sodium depends on the maintenance of tin in the divalent state. Any oxidant present in the sodium pertechnetate Tc 99m employed may adversely affect the quality of the prepared agent. Thus, sodium pertechnetate Tc 99m containing oxidants should not be used without first demonstrat-

ing that it is without adverse effect on the properties of the resulting agent.

The use of bacteriostatic sodium chloride as a diluent for sodium pertechnetate Tc 99m may adversely affect the biologic distribution of the prepared agent, and its use is not recommended.

Adequate reproduction studies have not been performed in animals to determine whether this drug affects fertility in males or females, has teratogenic potential, or has other adverse effects on the fetus. Technetium Tc 99m medronate sodium should be used in pregnant women only when clearly needed.

It is not known whether this drug is excreted in human milk. As a general rule nursing should not be undertaken when a patient is administered radioactive material.

Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: None reported.

DOSAGE AND ADMINISTRATION: The recommended dose for the average 70kg adult patient is 15mCi with a range of 10-20mCi. The patient dose should be measured by a suitable radioactivity calibration system immediately prior to administration.

Optimal imaging results are obtained within one to four hours after administration.

OSTEOLITE should be used within six hours after aseptic reconstitution with sodium pertechnetate Tc 99m. For optimum results this time should be minimized.

The vial contains no bacteriostat.

Radiopharmaceuticals should be used by persons who are qualified by specific training in the safe use and handling of radionuclides produced by nuclear reactor or particle accelerator and whose experience and training have been approved by the appropriate governmental agencies authorized to license the use of radionuclides.

RADIATION DOSIMETRY

The estimated absorbed radiation dose to an average patient (70kg) from an intravenous injection of a maximum dose of 20 millicuries of Technetium Tc 99m OSTEOLITE is shown in Table 4.

Table 4. Absorbed Radiation Dose

Organ	Technetium Tc 99m Medronate Sodium (rads/20mCi)
Total Body	0.13
Bone Total	0.70
Red Marrow	0.56
Kidneys	0.62
Liver	0.16
Bladder Wall	2 hr void 2.60 4.8 hr void 6.20
Ovaries	2 hr void 0.24 4.8 hr void 0.34
Testes	2 hr void 0.16 4.8 hr void 0.22

Method of calculation: A Schema for Absorbed-Dose Calculations For Biologically Distributed Radionuclides, Supplement No. 1, MIRD Pamphlet No. 1, p. 7, 1968.

HOW SUPPLIED: NEN's OSTEOLITE™ Technetium Tc 99m Medronate Sodium Kit is supplied as a set of five or thirty vials, sterile and non-pyrogenic. Each nitrogen-flushed vial contains in lyophilized form:

Medronate Disodium—10mg
Stannous Chloride Dihydrate—0.85mg

The pH is adjusted to between 7.0-7.5 with hydrochloric acid and/or sodium hydroxide solution. The contents of the vial were lyophilized under nitrogen. Store at room temperature (15°-30° C). Included in each five (5) vial kit is one (1) package insert and six (6) radiation labels. Included in each thirty (30) vial kit is one (1) package insert and thirty-six (36) radiation labels.

INSTRUCTIONS FOR PREPARATION OF TECHNETIUM Tc 99m OSTEOLITE: Aseptically inject 2 to 8ml of sodium pertechnetate Tc 99m (pertechnetate in isotonic saline without a bacteriostat) into the supplied vial of OSTEOLITE enclosed by a radiation shield. Swirl for at least ten seconds to dissolve completely. Label appropriately. Suitable labels have been supplied with each OSTEOLITE Kit. Use within six hours after reconstitution. For optimum results, this time should be minimized.

Using proper shielding, the vial containing the reconstituted solution should be visually inspected to insure that it is clear and free of particulate matter.

The contents of the kit vials are not radioactive; however, after reconstitution with sodium pertechnetate Tc 99m the contents are radioactive and adequate shielding and handling precautions must be maintained.

Do not use if there is a vacuum in the immediate drug container or if air is injected into the container when the dose is withdrawn.

Catalog Number NRP-420 (5 vial kit)
Catalog Number NRP-420C (30 vial kit)

NEN New England Nuclear®



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO 33397 BOSTON, MASS.

POSTAGE WILL BE PAID BY ADDRESSEE

New England Nuclear
Marketing Communications Department
549 Albany Street
Boston, Massachusetts 02118

Help your cardiologist study heart kinetics non-invasively with Brattle-gated scintiphotos.



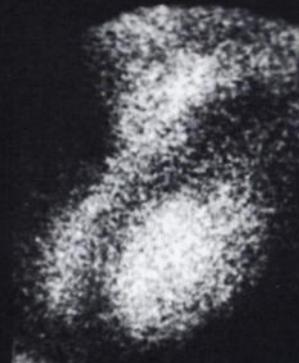
RAO, DIASTOLE



RAO, SYSTOLE



LAO, DIASTOLE

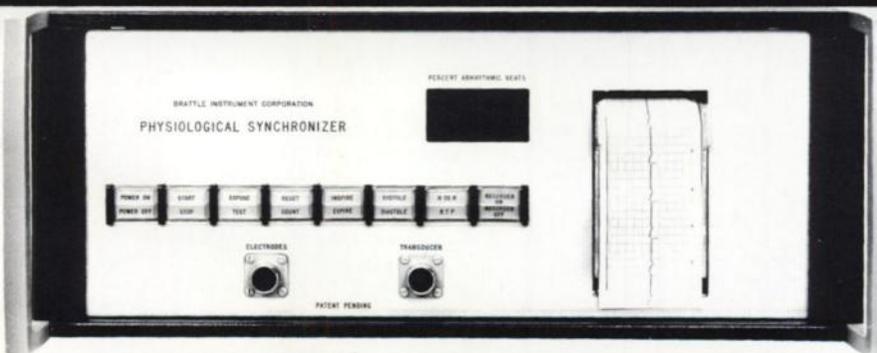


LAO, SYSTOLE

The RAO view shows akinesis of the lower antero-lateral wall and apex; and contraction of the inferior wall and high up the antero-lateral wall. The LAO view shows good contrac-

tion posteriorly and akinesis of the septal aspect of the chamber. Patient was injected IV with 20mCi of ^{99m}Tc -labelled Human Serum Albumin. The agent was prepared using the New

England Nuclear Electrolysis Kit for labelling HSA. Write or call for a portfolio of Brattle-gated lung, liver and heart studies.



No knobs, no meters, no errors

The spartan panel above tells the second-best part of our story. If you want to photograph peak systole, press the SYSTOLE button. If, say, you want systole only at full expiration, press the EXPIRATION button as well. If only breathing is relevant, don't press the heart button.

The Brattle is connected to the patient and to your gamma (or x-ray or ultrasonic) camera. Whenever the patient is in the selected phase, both the scope and the scaler on your gamma camera are gated ON, and film is exposed. Otherwise, they are OFF.

Brattles lock onto patients — and stay locked on

It doesn't matter if the patient's heart rate and breathing depth change while he's under the collimator be-

cause we stay right with him. Brattles contain an ECG to track heart, a plethysmograph to track respiration, and a tiny computer to deduce systole and diastole times from the heart signal. And because it's all built in, your operator need not be a physiologist.

We don't cover our tracks — we print them

The panel lights flash whenever the patient reaches the selected phases; and pushing the RECORDER-ON button gets you an ECG tracing marked with breathing and camera-on times. You can verify function before, during and after exposure.

A single pair of axillary electrodes captures both heart and breath

It's easy. And we supply disposable, pre-filled electrodes.

Some Brattles have been in clinical use for over three years — in community and major hospitals

More than half of our instruments are in community hospitals and the list is growing rapidly. Upon request, we'll supply names of happy users in your area.

What's the next step? Get in touch

Ask your NEN man about Brattles and HSA Kits. He can show you a portfolio of clinical pictures and arrange to have one of our people give you a demo. Or write or call us direct. We'll send you brochures on this and other models, and will give you your own set of clinical pictures and a bibliography on gated scintigraphy. If you wish, we'll even make you a Brattle owner. (This is the best part of our story.)

Brattle Instrument Corporation

243 Vassar Street • Cambridge, Massachusetts 02139 • 617-661-0300

UNION CARBIDE

FIRST IN NUCLEAR MEDICINE

It started with UNION CARBIDE leadership in nuclear technology back in the 1940s. And we've stayed first ever since. First with unit-dose radiopharmaceuticals. First with a stand-alone, 61-tube, large field gamma camera. First with a commercially available single-photon emission tomographic imager. First high speed, high resolution whole body imager. First-ranking supplier of ^{99m}Molybdenum.

Look Into Life . . .



Medical Products Division
270 Park Avenue
New York, New York 10017