Now, from Medi-Physics

MPI MDP Kit
Technetium Tc 99m Medronate Kit

MPI Xenon Xe 133 Gas
Xenon Xe 133
(10 mCi vials)

MPI DTPA Kit
Technetium Tc 99m Pentetate Kit
The Medi-Physics Family of Diagnostic Products

Sodium Iodide 1123
Capsules and Solution
MPI DTPA Kit
Technetium Tc 99m Pentetate Kit
Lungaggregate™ Reagent
Technetium Tc 99m Albumin Aggregated Kit
Sodium Pertechnetate
Tc 99m Solution

Neoscan®
Gallium Citrate Ga 67
Xenon Xe 133-V.S.S.
Xenon Xe 133 Ventilation Study System
MPI Stannous Diphosphonate
Technetium Tc 99m Etidronate Kit

MPI MDP Kit
Technetium Tc 99m Medronate Kit
MPI Xenon Xe 133 Gas
Xenon Xe 133
Tc 99m Lungaggregate™
Technetium Tc 99m Albumin Aggregated
Technetium Tc 99m Sulfur Colloid

medi+physics™

5801 Christie Avenue, Emeryville, CA 94608 • For more information please call (415) 658-2184
Inside California—Toll Free (800) 772-2446 • Outside California—Toll Free (800) 227-0483
Medical Data Systems

A2 is a trademark of PADs

PADs produces hardware and software, tools for diagnosis and research which do not come in contact with and cannot cause injury to the patient. Refer to the operation manual and instructions accompanying the medical DataSystem gamma camera and injectable imaging agent for information ontheir use.

Green Road, Inc.

1. Simplicity

The new A2 Single Terminal Systems contribute significantly to our commitment to image processing and display and a new surprise benefit to image processing and display and a new surprise.

2. Image Quality

Each A2 System offers a 512 X 512 image display matrix with 256 gray shades. In direct comparison of images with competition, new A2 images are superior.

3. Price

Our prices are lower and our systems more deliverable. Single terminal systems can be upgraded to accommodate multiple users and multiple cameras. Technical innovations, software excellence, comprehensive user education, and strong customer service have made MDS the leader in image processing technology.

After nine years of continuous leadership, we've renewed our dedication to each of these vital endeavors. Please write or call for more information on A2 Image Processing Systems.
For the past decade, nuclear medicine has enjoyed a continuing stream of new radiopharmaceuticals, new isotopes, new diagnostic procedures — and new patients. Many of these new diagnostic procedures resulted directly or indirectly from the investments in product research and development, testing, production, and promotion by a single company: New England Nuclear.

We supported investigators with grants to develop their ideas into agents suitable for animal and human testing... we invested in the production facilities to manufacture sufficient quantities of radiopharmaceuticals and isotopes to perform the studies necessary to bring new products to you.

And then, we underwrote an effort unique in nuclear medicine — we began spending hundreds of thousands of dollars each year to inform primary-care physicians and specialists why they should send their patients to nuclear departments for these new studies.

Such investments in new product development and physician education are common among traditional pharmaceutical companies producing proprietary products that can be patented. However, all NEN's investments were made on products for which no exclusivity of patent protection was available. Some of NEN's investments were not successful. A few were, however — and they profoundly changed nuclear medicine.

Of course, NEN could have waited for other companies to develop new procedures and products... to carry the risk and investment of pioneering trial and error. We could have waited until someone else created a demand for new isotopes, and then capitalized on their efforts.

Instead, we built four of our own cyclotrons, and are currently building a multimillion-dollar linear accelerator — further evidence of NEN's unique commitment to research and development innovation in isotope and radiopharmaceutical production.

If NEN had not been so committed to advancing nuclear diagnostics, perhaps bone scans might still be done with strontium... and techniques such as tumor, abscess, and myocardial perfusion imaging might still be subjects for academic — not clinical — consideration.

NEN has maintained a high level of customer acceptance of its isotopes and radiopharmaceuticals, thanks to physicians and technologists who understand that when they trust their business to NEN they are sharing our investment in future nuclear diagnostics... in the profession's future ability to diagnose diseases for which medicine has no agents today... and in the effort to communicate the benefits of nuclear diagnostics to the medical community.
The Stable Solution To Your Bone Imaging Needs

Now Available For Routine Use

• One Year Shelf Life
• No Refrigeration Required
• Full 6 Hour Use After Preparation
• Contains Ascorbic Acid as an Antioxidant

Technetium Tc 99m Medronate Kit

Brief Summary of Prescribing Information

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 pregant 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.

How Supplied
Union Carbide's Technetium Tc 99m Medronate Kit is supplied as a sterile, pyrogen-free kit containing 5 vials.

Each 10 ml vial contains 10 mg medronic acid, 0.17 mg (minimum) stannous chloride (maximum stannous and 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.

Product #17500502 Multidose vial shield with cap and retainer ring available separately.

For ordering, customer service, and technical information, call toll-free 800-431-1146 (in NYS call 800-942-1986).

CintiChem®

Kit

MDP

From Atom To Image

Manufactured For:
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.
CMS PROVIDES
Software, Hardware and Installation.

- PROVEN AND VERIFIED PROGRAMS FOR
  G.E. MED-SERIES MDS MODUMED
  DEC GAMMA II MDS A SQUARED
  INFORMATEK ADAC

- 7 PINHOLE PANORAMIC COLLIMATORS
  WITH FOUR RECONSTRUCTION DIAMETERS
  EACH WITH THREE RESOLUTIONS

- UNIQUE LIGHT COLLIMATOR INSERTS
  FOR LARGE and SMALL FIELD CAMERAS

- COMPUTER SPEEDS FROM 3.5
  SECONDS/SLICE

- VARIABLE SPACING BETWEEN SLICES

CMS BILATERAL and SLANT COLLIMATORS
MULTIPLE SIMULTANEOUS IMAGING
BILATERAL/SLANT COLLIMATORS (WITH ROTATION)
FOR LARGE and SMALL FIELD ANGER CAMERAS
BILATERAL and SLANT COLLIMATORS
FOR THE CORDIS/BAIRD SYSTEM 77.

INFORMATION PROCESSING IN
MEDICAL IMAGING
Edited by Robert DI PAOLA, Edmond KAHN

INSERM
Vol 88, 700 pages, 42 papers in English
120 Francs
40 US dollars including air mail postage

Proceedings of the international INSERM Symposium held in Paris, July
1979, dealing with the following topics:

- Nuclear magnetic resonance, ultrasound and nuclear scattering imaging
- Radiological and computerized axial tomography imaging
- Nuclear medicine imaging. Positron emission tomography
- Gamma emission and Compton scattering tomography
- Dynamic functions studies
- Display systems and algorithms

CHAIRMEN:
J.C. Roucauroy (France), K.E. Britton (UK),
F. Erbsmann (Belgium), B.E. Oppenheim (USA), M.L. Goris (USA), A.B. Brill (USA),
S.M. Pizer (USA), C.E. Metz (USA), A.E. Todd Pokropek (UK).

INSEAM-PUBLICATIONS
101, rue de Tolbiac
75654 PARIS CEDEX 13 - France

PREPAYMENT IS REQUIRED
CHEQUE PAYABLE TO INSEAM
THE OBVIOUS SOLUTION

Low* Dissolved Oxygen Non-preservative normal saline USP

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 m0sm/1, 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 hypopotassemia 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. 5-25

SODIUM CHLORIDE INJECTION U.S.P. with LOW DISSOLVED OXYGEN

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 m0sm/1; pH between 4.5 and 7.0. Dissolved oxygen content less than 5 ppm. Contains no preservatives.

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

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

Volume 21, Number 5
Whole New Planes of Vision.
Tomovision is a New Dimension in Nuclear Imaging.

Tomovision. As dramatic an advance over current nuclear tomography as tomography was over planar imaging. Large organ and area studies are now possible. And Tomovision gives you clearer images with more detail, fewer artifacts, and better contrast. How does it work? The real secret is in our collimators and programming.

To complement the 7 pinhole collimator, we designed a revolutionary Rotating Slant Hole Collimator. It works on Technicare's small field and large field gamma cameras. And gives you a field of view equal to the diameter of the collimator, beginning at the face of the camera.

So you can see more than ever before. And more clearly than ever before.

So the role of nuclear medicine in research and diagnosis has suddenly expanded. Because tomography is ready to augment the classic diagnostic procedures. Ready to become a routine diagnostic tool.

All Tomovision equipment is manufactured by the Technicare Corporation. So we take care of it all. And we're building our one source reputation with a commitment to excellence. Excellence in training of our field service engineers. Excellence in providing prompt, local service throughout the nation.

Tomovision is your assurance that nuclear tomography will deliver consistent, reliable performance for improved clinical confidence.

TECHNICARE
Technicare Corporation
29100 Aurora Road
Solon, Ohio 44139
(216) 248-1800

A Johnon & Johnson Company
Formerly Ohio-Nuclear, Inc.
The importance of CT in treatment planning is growing fast. And with ADAC, it's growing better. Faster. Easier. Far more accurate.

Why? Two reasons.

First, the exclusive built-in projection system that projects a magnified CT image onto the digitizer tablet.

The magnified image allows the direct input of patient contours with a high degree of accuracy.

Images from any CT scanner, or any other 70-105mm film, can be used. And the software automatically corrects for scale.

The second reason—a direct digital compatibility with most CT scanners. It's made possible by an optional magnetic tape drive, 64K bytes of computer memory, and a high-quality display with up to 64 gray shades.
Tomovision is a New Dimension in Nuclear Imaging.

Tomovision. As dramatic an advance over current nuclear tomography as tomography was over planar imaging. Large organ and area studies are now possible. And Tomovision gives you clearer images with more detail, fewer artifacts, and better contrast. How does it work? The real secret is in our collimators and programming.

To complement the 7 pinhole collimator, we designed a revolutionary Rotating Slant Hole Collimator. It works on Technicare’s small field and large field gamma cameras. And gives you a field of view equal to the diameter of the collimator, beginning at the face of the camera.

So you can see more than ever before. And more clearly than ever before.

So the role of nuclear medicine in research and diagnosis has suddenly expanded. Because tomography is ready to augment the classic diagnostic procedures. Ready to become a routine diagnostic tool.

All Tomovision equipment is manufactured by the Technicare Corporation. So we take care of it all. And we’re building our one source reputation with a commitment to excellence. Excellence in training of our field service engineers. Excellence in providing prompt, local service throughout the nation.

Tomovision is your assurance that nuclear tomography will deliver consistent, reliable performance for improved clinical confidence.

TECHNICARE

Technicare Corporation
29100 Aurora Road
Solon, Ohio 44139
(216) 246-1800

A Johnson & Johnson Company
Formerly Ohio-Nuclear, Inc.
thrombosis
detection of DVT using $^{125}$I fibrinogen

position on leg

percent uptake

Print Out
1¼ 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
125I METHOTREXATE RADIOIMMUNOASSAY KIT

Our 125I Methotrexate Radioimmunoassay Kit provides a rapid, simple method with an unexcelled level of sensitivity and specificity. Here is a comparison chart that speaks for itself. Select the proven DBI 125I MTX-RIA kit to monitor the circulating methotrexate levels in serum, plasma, cerebral spinal fluid or urine.

Also available:
- 125I Doxorubicin-RIA Kit
- 125I Digoxin-Stat-RIA Kit
- 125I Folate Kit
- 125I T₄-One Step-RIA Kit
- 125I T₃-Uptake Kit

Call or write for our introductory kit.

<table>
<thead>
<tr>
<th>DBI RADIOIMMUNOASSAY</th>
<th>IMMUNOENZYME ASSAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT INCUBATION:</td>
<td>15 minutes at 37°C</td>
</tr>
<tr>
<td>SENSITIVITY:</td>
<td>0.0004 μM (700 times more sensitive)</td>
</tr>
<tr>
<td>EXOGENOUS INTERFERENCE:</td>
<td>None</td>
</tr>
<tr>
<td>STANDARDS SUPPLIED:</td>
<td>7</td>
</tr>
<tr>
<td>PRICE:</td>
<td>*57½ cents per tube</td>
</tr>
</tbody>
</table>

*In units of 200

10457-H Roselle Street, San Diego, CA 92121
Tel. (714) 452-0950
The importance of CT in treatment planning is growing fast. And with ADAC, it's growing better. Faster. Easier. Far more accurate.

Why? Two reasons.

First, the *exclusive built-in projection system* that projects a magnified CT image onto the digitizer tablet. The magnified image allows the direct input of patient contours with a high degree of accuracy.

Images from any CT scanner, or any other 70–105mm film, can be used. And the software automatically corrects for scale.

The second reason—a *direct digital compatibility* with most CT scanners. It’s made possible by an optional magnetic tape drive, 64K bytes of computer memory, and a high-quality display with up to 64 gray shades.
The CT Connection is only one of the many important features of the ADAC Radiation Therapy Planning System. Others include software by the Northwest Medical Physics Center, unique time-saving program features, menu instructions in plain English, easy-to-read dose distribution plots in four colors, and full programming capability.

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, California 94086. Telephone: (408) 736-1101.
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 99mTc 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.

See us at the Society of Nuclear Medicine Show Booth 271

6701 Sixth Ave. S., Seattle, WA 98108
(206) 763-2170
A consistent agent for skeletal imaging, *TechneScan PYP* is now available for use as an adjunct in the diagnosis of acute myocardial infarction, and for gated cardiac blood-pool imaging.

Investigators have found the technetium-99m pyrophosphate scintigraphic study to be a highly useful diagnostic technique for evaluating chest pain of uncertain origin.¹

"The gated cardiac blood pool scan permits the calculation of both ejection and regional wall motion from a single examination."²

*Mallinckrodt's TechneScan PYP*...a preferred way to detect acute myocardial infarction...an advanced method to dynamically assess cardiac function.

References:
An advance from Mallinckrodt provides an excellent adjunct in the detection of myocardial infarction and the dynamic assessment of cardiac function.

Technescan® PYP™ Kit (Stannous Pyrophosphate) for preparation of Technetium Tc-99m Stannous Pyrophosphate.

BRIEF SUMMARY

CLINICAL PHARMACOLOGY

When injected intravenously Technescan PYP Tc 99m has a specific affinity for areas of altered osteogenesis, and a cardiac imaging agent used as an adjunct in the diagnosis of acute myocardial infarction.

As an adjunct in the diagnosis of confirmed myocardial infarction (ECG and serum enzymes positive), the incidence of false negative images has been found to be 6 percent. False negative images can also occur if made too early in the evolution of the infarct or too late in the resolution phase. In a blinded study involving 22 patients whose ECG was positive and serum enzymes questionable or negative, but in whom the final diagnosis of acute myocardial infarction was made, the incidence of false negative images was 23 percent.

Technescan PYP is a blood pool imaging agent which may be used for gated cardiac blood pool imaging. When administered intravenously 30 minutes prior to the intravenous administration of sodium pertechnetate Tc-99m approximately 76 percent of the injected activity remains in the blood pool.

CONTRAINDICATIONS

None.

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 electively in nature, of a woman of child bearing capability should be performed during the first trimester approximately 10 days following the onset of menses.

Warning: Preliminary reports indicate impairment of brain scans using pertechnetate Tc-99m which have been preceded by bone scan. The impairment may result in false positives or false negatives. It is recommended, where feasible, that brain scans precede bone imaging procedures.

Technescan PYP Kit must be maintained at refrigerator temperature until use. The contents of the Technescan PYP reaction vial are intended for use in the preparation of Technetium Tc 99m Stannous Pyrophosphate. Technescan PYP may also be reconstituted with sterile, pyrogen-free normal saline containing no preservatives and injected intravenously prior to the administration of sodium pertechnetate Tc-99m.

Sodium pertechnetate Tc-99m solutions containing an oxidizing agent are not suitable for use with the Technescan PYP Kit. 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.

Technescan PYP Tc 99m should not be used more than six hours after preparation.

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 Technescan PYP Tc 99m administration, patients should be encouraged to drink fluids. Patients should void as often as possible after the Technescan PYP Tc 99m 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.

Blood Pool Imaging

Technescan PYP should be injected by direct venipuncture. Heparinized catheter systems should be avoided.

ADVERSE REACTIONS

None.

HOW SUPPLIED

Catalog Number—094 Technescan PYP Kit

Kit Contains:

5—Stannous Pyrophosphate Reaction Vials (lyophilized) for the preparation of Technetium Tc-99m Stannous Pyrophosphate.

Reaction Vials Contains:

12.0 mg sodium pyrophosphate and 3.4 mg stannous chloride (lyophilized).

Hydrochloric acid is added for pH adjustment prior to lyophilization.

5—Radioisotopic Information String Tags.

Mallinckrodt, Inc.

P.O. Box 5840, St. Louis, Missouri 63134
Hepatitis B testing:

Do you know what you're missing?

You may be missing positives. Clinical Assays' Solid Phase RIA Kit for detection of Hepatitis B Surface Antigen is so sensitive it can pick up positives your present third generation test may be missing. Our three-species heterologous system also reduces the chance of false positives.

And antibody coated tube convenience. No beads to transfer. The entire assay is performed in a single tube. Splash-free washing reduces biohazard to lab personnel and virtually eliminates non-repeatable positives. Easy tube labeling identifies samples from start to finish.

Compare these other features.
- Two 90-minute 37° incubations allow you to run either serum or plasma samples without recalcification.
- 1-hour STAT assay includes all controls so that it can be run independently of previous testing.
- Kit configuration reduces waste, making it ideal for both high and low volume users.
- Red tinted tracer provides visual quality control.

For an evaluation kit, call our toll free number or your local Clinical Assays/Travenol representative.

Innovating for Life™

Clinical Assays' Solid Phase RIA Kit for Detection of Hepatitis B Surface Antigen
the world's first
digital camera
a fully integrated clinical processing imager
Nuclear Medicine has reached a peak with the Apex line. A revolution, not merely an evolution. Apex is a family of computerized imagers where the digitally controlled detector communicates directly with an array of data acquisition and processing modules. This is the new generation in Nuclear Medicine.

Apex systems provide:
- Superb lesion detectability and image contrast.
- Unsurpassed sensitivity and linearity.
- Ultra-high count rates and superfast dynamic frame rates.
- On-line correction of spatial distortions and energy aberrations.
- Automatic system recalibration.
- Comprehensive set of clinical processing software.
- Huge memory with full programming facilities.

The Apex line comprises large field stationary, large field mobile and light weight mobile systems. More compact and space effective than any presently available. Easy to learn, convenient to operate. The Apex line...another unprecedented idea whose time has come.

To learn more about the world’s first digital camera, please contact:

**elscint inc.**  
138-160 Johnson Avenue,  
Hackensack, N.J. 07602, U.S.A.  
Call Toll Free: 800-631-1694
OUR NEW COMPARATIVE DISPLAY SYSTEM MAKES THE MOST EXPERIENCED, NON-TRAUMATIC CBF ANALYZER EVEN BETTER.

F.S. MALE 33Y/O
RIGHT HANDED

PROCEDURE: RESTING
PEC02 : 38.2MMHG
B.P. : 124/82MMHG

This diagram represents a typical diagnosis of migraine headache as derived from a TASC-5 System analysis.

Reprinted from "Regional Cerebral Hemodynamics During Migraine and Cluster Headaches Measured by the 133Xe Inhalation Method," published by Fumihiko Sokai, M.D. and John Sterling Mayer, M.D., published in HEADACHE, Volume 18, July 1978, Number 3, Lee Kudrow, M.D., Editor.
THE HARSHAW TASC-5 IS A COMPLETELY INTEGRATED, FULLY COMPUTERIZED SYSTEM FOR NON-INVASIVE rCBF ANALYSIS.

It has been proven under the most stringent demands of clinical applications. Using the inhalation method of $^{133}$Xenon administration, Harshaw's TASC-5 System entirely eliminates patient danger and stress normally associated with invasive methods. In addition, three major improvements increase the TASC-5 System's accuracy, flexibility and ease of operation: a new software routine; a direct, on-screen comparative graphic presentation and instant hard copy capability with Harshaw's new hard copy attachment.

HARSHAW'S NEW INHALATION ANALYSIS ROUTINE—AN IMPROVEMENT IN EFFICIENCY AND ACCURACY.

Harshaw's new Scattered Radiation Artifact Routine, an updated version of our classic computer program based on the research of Dr. Walter Obrist, et al.*, yields significantly increased information about flow grey.


HARSHAW'S HARD COPY ATTACHMENT—A PERMANENT RECORD, INSTANTLY AVAILABLE.

Fast, accurate analysis is made even easier by Harshaw's hard copy attachment. It provides an instant, silent, permanent record of the tabular or comparative graphic presentation on the terminal CRT, and eliminates the need for a teletypewriter or other impact printer. The result is a significant savings in analysis time, and the elimination of "translation" errors that can reduce accuracy.

TASC-5—AN INCREASINGLY ACCEPTED CLINICAL TOOL.

Harshaw's TASC-5 System is the most advanced and experienced Regional Cerebral Blood Flow Analyzer available. And it is the commercial, non-invasive system used by more U.S. institutions presently performing rCBF studies than all other commercial systems combined. We'll be happy to demonstrate its capabilities for you.

Call or write us. We're The Harshaw Chemical Company, Crystal & Electronic Products, 6801 Cochran Road, Solon, Ohio 44139. (216) 248-7400.
Pharmatopes, Inc.
WELCOMES THE SOCIETY OF NUCLEAR MEDICINE TO DETROIT FOR THE SNM ANNUAL MEETING

Pharmatopes, Inc.
NUCLEAR PHARMACY SERVICES
DETROIT • GRAND RAPIDS • TOLEDO • DAYTON • CINCINNATI • COLUMBUS
AKRON • INDIANAPOLIS • CHICAGO • WASHINGTON, DC • BALTIMORE
VIRGINIA BEACH • RICHMOND • SAN JOSE • SACRAMENTO soon to be open: HARTFORD

For further information contact your local Pharmatopes or call (313) 543-8400
PHO/GAMMA® ZLC™
A BREAKTHROUGH IN NUCLEAR CAMERA PERFORMANCE

Peak nuclear camera performance at all times under all energy outputs. That’s the dramatic improvement in nuclear imaging made possible with ZLC, a unique combination of hardware and programming that optimizes detector optics while greatly improving uniformity and linearity. ZLC, an acronym for Z map and Linear Correction, corrects energy output to the correct signal level, and it restores linearity. The ZLC circuits function over the full range of count rate and energy levels.

Image uniformity and resolution improvements are immediately obvious, without loss to image integrity. ZLC offers a higher degree of confidence in the fidelity of the presented information.

The combination of energy output correction and linear restoration without having to manipulate the information received represents a high achievement in camera performance. No information (noise) is added; no counts are subtracted. Only data received from the patient appears in the image presentation.

The Pho/Gamma ZLC Standard Camera is a complete imaging system that includes the ZLC Detector and microprocessor-based Standard Console with Micro Dot Imager™. ZLC is offered in both 37 tube and 75 tube versions, each having a full 15.25 inch field of view. If you already own a Pho/Gamma LFOV, we offer a complete ZLC package to improve the performance of your camera.

A HISTORY OF PERFORMANCE...
A COMMITMENT TO THE FUTURE.

For more information on this revolutionary development in Nuclear Medicine, contact your local Radiographics Representative, or call... (312) 635-3100.
SORIN’s TCK-2 kit gets over the difficulty of rendering $^{99m}\text{Tc}$-labelled human albumin stable “in vivo”.

This kit is designed for examination of the vascular pool and can be recommended as the instrument of choice for the measurement of several cardiovascular parameters.

When determination of ventricular volume curves is required, in fact, the ideal tracer should remain within the intravascular pool and not disperse to any significant extent during the recording.

This is ensured by the TCK-2, a kit with a high labelling efficiency, slow blood clearance and long stability in vitro.
NEW... FOR NUCLEAR CARDIOLOGY

Cardiac Stress Table and Ergometer System

VERSATILE
- Permits all patient positions, from supine through upright.
- Adjustable seat, pedal unit, hand grips and shoulder braces.
- Table does "double duty" for standard imaging procedures.

PRACTICAL
- Full clearance for gamma camera base.
- Swing-away pedal unit for patient access.
- O.R.-type casters assure complete mobility.

COST EFFECTIVE
- High-quality Warren Collins pedal unit and control console can be used for standard stress testing.
- Exceptional performance, designed expressly to meet the requirements of nuclear cardiology.

For more information, request Bulletin 289-B

NUCLEAR ASSOCIATES
Division of VICTOREEN, INC.
100 Voice Road  •  Carle Place, N.Y. 11514  •  (516) 741-6360
This small desk top microprocessor computer provides complete inventory control and NRC record keeping functions for the nuclear medicine department.

It is user programmable — you program it to fit your requirements even down to the half-life of the radionuclide so the Isotron never becomes obsolete in the rapidly changing field of nuclear medicine.

The Isotron can keep track of up to 20 different radiopharmaceuticals simultaneously by both radionuclide and chemical form! Updates the quantity of radioactivity every minute to reflect radioactivity decay.

The Isotron performs patient dose/volume calculations.

The Isotron subtracts the administered dose from the decayed activity and provides a running total of remaining activity. The Isotron performs future time calculations. If it is 8:00 A.M. and you want to draw up a dose for 1:00 P.M. the calculation is simply and rapidly performed.

An optional hard copy data printer is available with the Isotron, known as the Isocord, which provides three copies of all pertinent data for your record keeping.

The Isotron may be used with any manufacturers dosecalibrator.

The Cost? Very reasonable. When combined with the Isocord and our Assayer 1 Dosecalibrator the total price is less than competitive systems with 50% of the capabilities.

For more information or to arrange a demonstration call our toll free number 800-231-1747 (Texas customers call 713-468-9628.)
DYNA MO-
ALL AROUND PERFORMANCE.
When we first introduced DynaMo, 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.
NEW... FOR NUCLEAR CARDIOLOGY

Cardiac Stress Table and Ergometer System

VERSATILE
- Permits all patient positions, from supine through upright.
- Adjustable seat, pedal unit, hand grips and shoulder braces.
- Table does “double duty” for standard imaging procedures.

PRACTICAL
- Full clearance for gamma camera base.
- Swing-away pedal unit for patient access.
- O.R.-type casters assure complete mobility.

COST EFFECTIVE
- High-quality Warren Collins pedal unit and control console can be used for standard stress testing.
- Exceptional performance, designed expressly to meet the requirements of nuclear cardiology.

For more information, request Bulletin 289-B

NUCLEAR ASSOCIATES
Division of VICTOREEN, INC.
100 Voice Road • Carle Place, N.Y. 11514 • (516) 741-6360

THE JOURNAL OF NUCLEAR MEDICINE
Diagnosis: normal ventilation, abnormal perfusion — pulmonary embolism

Imaging information:
- Instrument: Picker Model 4/15 Gamma Camera
- Dose: 15 mCi Xenon 133, 3 mCi PULMOLITE
- Information density: 1,000 counts/cm², 2,000 counts/cm²

Xenon Xe 133 Gas (CALIDOSE™) Dispensing System
PULMOLITE™ Technetium Tc 99m Aggregated Albumin Kit

Please see following page for brief prescribing information.
See us at the SNM show in Detroit — Booths #615, 617, 619, 621, 623
Xenon Xe 133 Gas
(CALIDOSE*) Dispensing System

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 elective in 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.

Contraindicated in patients with severe pulmonary hypertension.

The use of Tc 99m albumin should not be administered to patients in the immediate postoperative period where the potential hazards may outweigh the benefits to be gained.

The use of Tc 99m 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 is physically 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 elective in 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-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 sodium pertechnetate 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 oxidents, 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 radiodiagnostic kit.

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 Xe 133 gas aggregated albumin not be used after eight hours from the time of reconstitution. Refrigerate 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 idiosyncratic 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.

DOSAGE 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 1.3 ml.

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 easy 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.).

HOW SUPPLIED: PULMOLITE™ Technetium Tc 99m Aggregated Albumin Kit is supplied in kits of five (5) or thirty (30) vials, sterile and non-pyrogenic, each vial containing in hypophosphite 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 10³ 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.

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.

Catalog Number NRP-127 * Patent Pending +JO 127 July 1975, Rev 1

PULMOLITE™
Technetium Tc 99m Aggregated Albumin Kit

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 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 is physically 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 elective in 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-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 sodium pertechnetate 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 oxidents, 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 radiodiagnostic kit.

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 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.
Brain

Diagnosis: arteriovenous malformation

Imaging information: Instrument: Ohio Nuclear Series 100 Gamma Camera
Scan time: 90 minutes postinjection
Counts: 400 K

Dose: 15 mCi GLUCOSCAN

GLUCOSCAN™
Technetium Tc 99m Glucceptate Sodium Kit

Please see following page for brief prescribing information.
See us at the SNM show in Detroit—Booths #615, 617, 619, 621, 623

New England Nuclear®
Rule
nursing should not be undertaken when a patient is administered radioactive
material.
Safety and effectiveness in children have not been established.

Adverse Reactions: Although infrequent, erythema has been reported in
association with the use of Technetium Tc 99m Glucopate Sodium.

Dosage and Administration: The recommended dose for the average
(70kg) adult patient is 10-20 milliliters for both renal and brain imaging.
Technetium Tc 99m Glucopate Sodium is intended for intravenous administra-
tion only.

Technetium Tc 99m Glucopate Sodium should be used within six hours after
automatic reconstitution with sodium pertechnetate Tc 99m. For optimal results,
this time should be minimized. The reaction vial contains no bacteriostats.
Optimal results for both renal and brain imaging are obtained one hour after
administration. Studies have shown that although optimal target-to-background
ratios for brain lesions are obtained at two hours post-injection, there is no im-
provement in diagnostic efficacy after one hour.

Radiopharmaceuticals should be used by persons with 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 ap-
propriate governmental agencies authorized to license the use of radionuclides.
The components of the New England Nuclear GLUCOSCAN Kit are supplied
sterile and non-pyrogenic. Aseptic procedures normally employed in making
additions and withdrawals from sterile, non-pyrogenic containers should be
used during addition of pertechnetate solution and the withdrawal of doses for
patient administration.

How Supplied: NEN’S GLUCOSCAN Technetium Tc 99m Glucopate Sodium
Kit is supplied as a set of five or thirty vials, sterile and non-pyrogenic. Each
vial contains in lyophilized form:

- Glucopate Sodium – 200mg
- Maximum Tin – 0.07mg
- Stannous Chloride (Min.) – 0.06mg

Prior to lyophilization the pH of 0.95% Sodium chloride solution is
controlled with hydrochloric acid and/or sodium hydroxide solution. Store at room temperature (15-30°C). Included in each
five vial kit is one package insert and six radiation labels. Included in each
three vial kit is one package insert and thirty-six radiation labels.

The contents of the vial kits are not radioactive; however, after recon-
stitution with sodium pertechnetate Tc 99m the contents are radioactive and
evaluate shielding and handling procedures must be maintained.

This reagent kit is approved for use by persons licensed by the U.S. Nuclear
Regulatory Commission pursuant to Section 35.34 and 35.100 Group III of 10
CFR or under equivalent licenses of Agreement States.

Catalog Number NPR-180 (5 vial kit)
Catalog Number NPR-180C (30 vial kit)

August 1978

Gallium Citrate Ga67

Indications and Uses: Gallium Citrate Ga 67 may be useful in demonstrat-
ing the presence and extent of the following malignancies: Hodgkin’s dis-
ease, lymphomas and bronchogenic carcinoma. Positive Ga 67 uptake in
the absence of prior symptoms warrants follow-up as an indication of a potential
disease state.

Gallium Citrate Ga 67 may be useful as an aid in detecting some acute in-
flammatory lesions.

Contraindications: None known.

Warnings: Gallium Citrate Ga 67 should not be administered to children or to
patients who are pregnant or to nursing mothers unless the information to be
obtained outweighs the potential hazards. Ideally, examinations using radiophar-
maceutical drug products, especially those elective in nature of a woman of
childbearing capacity should be performed during the first few (approximately
ten) days following the onset of menses.

Precautions: A thorough knowledge of the normal distribution of intrave-
nously administered Gallium Citrate Ga 67 is essential in order to accurately
interpret pathologic studies.

The findings of an abnormal gallium concentration usually implies the exis-
tence of underlying pathology, but further diagnostic studies should be done to
distinguish benign from malignant lesions. Gallium Citrate Ga 67 is intended for
use as an adjunct in the diagnosis of certain neoplasms. Certain pathologic
conditions may yield up to 40% false negative gallium studies. Therefore a
negative study cannot be definitively interpreted as ruling out the presence of
disease.

Lymphocytic lymphoma frequently does not accumulate Gallium 67 suffi-
ciently for unequivocal imaging, and the use of gallium with this histologic type
of lymphoma is not recommended at this time.

Gallium Citrate Ga 67, as well as other radioactive drugs, must be handled
with appropriate safety measures should be used to minimize external
radiation exposure to clinical personnel. Also, care should be taken to minimize
radiation exposure to patients consistent with proper patient management.

No long term animal studies have been performed to evaluate carcinogenic
potential.

Adequate reproduction studies have not been performed in animals to de-
termine whether this drug affects fertility in males or females, has teratogenic
potential, or has other adverse effects on the fetus. Gallium Citrate Ga 67

should be used in pregnant women only when clearly needed.

Gallium Citrate Ga 67 has been found to accumulate in breast milk and
should not be used in nursing mothers.

Safety and effectiveness in children have not been established.

Gallium Ga 67 localization cannot differentiate between tumor and acute in-
flammation; and other diagnostic studies must be added to define the underly-
ing pathology.

The expiration date of the drug is seven days after the date of calibration.

Adverse Reactions: Severe itching, erythema and rash were observed in
one patient of 300 studied.

Dosage and Administration: The recommended adult (70kg) dose of
Gallium Citrate Ga 67 is 2.5mCi. Gallium Citrate Ga 67 is intended for intrave-
nous administration only.

Approximately 10% of the administered dose is excreted in the feces during
the first week after injection. Daily laxatives and/or enemas are recommended
from the day of injection until bowel content images are obtained in order to cleanse
the bowel of radioactive material and minimize the possibility of false positive
studies.

Studies indicate the optimal tumor to background concentration of ratios are
often obtained about 48 hours post-injection. However, considerable biological
variability may occur in individuals, and acceptable images may be obtained as
early as 6 hours and as late as 120 hours after injection.

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

Radiopharmaceuticals should be used by persons who are qualified by spe-
cific training in the safe use and handling of radionuclides produced by nuclear
reactor or particle accelerator and whose experience and training have been ap-
proved by the appropriate government agencies authorized to license the use of
radionuclides.

How Supplied: Gallium Citrate Ga 67 is supplied sterile and non-pyrogenic for intravenous use. Each ml contains 2mCi of Gallium 67 on the calibration
date, as a complex formed from 9ng gallium chloride Ga 67, 2mg of sodium
chloride, 6.8ng sodium chloride, and 0.9% benzyl alcohol w/v as preservative.

This is adjusted to 4.5-7.5 with hydrochloric acid and/or sodium
hydroxide solution.

Wells are available from 3mCi to 18mCi in increments of 3mCi on calibration
date.

The contents of the vials are radioactive and adequate shielding and hand-
ling procedures must be maintained.

Catalog Number NPR-121

December 1979
Diagnosis: plasmacytoma

Imaging information: Instrument: Cleon 760 Whole Body Imager
Scan time: 48 hours postinjection
Speed: 5 cm/min

Dose: 5 mCi Gallium Citrate Ga 67

Gallium Citrate Ga67

New England Nuclear

Please see preceding page for brief prescribing information.
See us at the SNM show in Detroit—Booths #615, 617, 619, 621, 623
3 Big Favorites

OF OVER 500 NUCLEAR PRODUCTS available in our free catalog

a cardiac stress system
that does more and costs less.
Designed for exercise imaging
SPECIFY MODEL 056-180 IN YOUR INFORMATION REQUEST

radiochromatogram scanner
Computerized analysis of radiopharmaceutical purity
SPECIFY "ATOMASTER" (149-200) IN YOUR INQUIRY

pulmanex xenon system
A single unit with an integrated gas trap
SPECIFY "PULMONEX" (130-500) IN YOUR INQUIRY

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
For Professional Products and Supplies

PDR is the acknowledged reference source for professional product information...it organizes information on radio-pharmaceuticals and commonly used general pharmaceuticals. It also includes manufacturers’ information on test kits, radiographic film and dosimetry devices.

For Sophisticated Instruments and Equipment

Look into PDR for advanced diagnostic aids—ultrasound equipment, linear accelerators, computerized tomographic scanners—organized by manufacturer to suit your needs and budget. A reply card information service is included for your convenience.

For Educational Materials

Books, monographs, reference volumes, audiovisual programs...PDR holds a library full of professional opportunity...and an easy-order card, to bring it to you.

Nuclear Medicine M.D.s, Radiologists, and Pathologists refer to PDR actively...consulting it more than 500,000 times a year for product information.

The first place to look...
When a SQUIBB product comes into your lab, SERVICE comes with it.
Ever since the first Squibb radio-pharmaceutical was delivered over two decades ago, we have known that good products accompanied by good service result in customer satisfaction. We are proud of our record of professional service to nuclear medicine technologists and physicians and of our efforts to help fulfill their unique needs. Our current programs continue this tradition.

**Squibb Health Physics Service**
Specially trained Technical Associates aid laboratory personnel with a pre-inspection of the laboratory to help ensure compliance with radiation safety regulations.

**Technical Associates**
They have had extensive training and experience in nuclear medicine, radiopharmaceuticals, RIA and instrumentation. They can aid in license procurement and renewal, laboratory design and expansion, technologist training, trouble-shooting and instrument calibration.

**Squibb National Nuclear Medicine Seminars**
Two and a half-day program in management training and development. Designed for chief technologists, supervisors and persons who hold positions of equivalent or greater responsibility.

**Squibb National Nuclear Medicine Seminars**
Educational course for technologists. Two days on *in vivo* procedures and two days on *in vitro* procedures. Approved for continuing education credits.

**Customtec®**
Exclusive computer service that custom-tailors generator size and delivery schedule to a laboratory’s daily technetium Tc 99m requirements.

**Technologist Education Plan**
A lead recovery program in which Squibb puts funds into a customer’s education account each time spent Minitec® (Technetium Tc 99m) Generators are returned.

Your Squibb Representative will be happy to give you more information about these programs and other Squibb services. Technical assistance can be obtained from Technical Customer Service, 609-921-4100.

©1980 E.R. Squibb & Sons, Inc. 600-508 Issued May, 1980

Volume 21, Number 5

39A
THE LOWEST-PRICED ERGOMETER SYSTEM ON THE MARKET!

- can be used with largest cameras
- smoother pedaling action
- fully adjustable for patient comfort

(patient studies with camera shown, available upon request)

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

INTRODUCING
NEW  MULTI-PURPOSE COLLIMATOR

PINHOLE ATTACHMENT
Announcing a new Multi-Purpose collimator developed by NSI that converts from a pinhole to an uptake collimator with a simple change of attachments.

P.O. BOX 454
BRANFORD, CONN. 06405
(212) 352-1999
(516) 752-9270

NSI

UPTAKE ATTACHMENT
NOW FULLY UTILIZE YOUR GAMMA CAMERA
- Replace your obsolete rectilinear scanner used for thyroids with our dual purpose pinhole collimator and do your thyroid uptakes and imaging on your gamma camera
- Change easily from pinhole to uptake system without removing main assembly from gamma camera
- Eliminates the need for a separate uptake system
- Pinhole attachment has three interchangeable apertures available
- Available for most gamma cameras and compatible with both high and low energy isotopes
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.
Now there's an economical agent
AN-MDP™ Technetium Tc 99m Medronate Kit

If you've been waiting for an economical way to produce high-quality, low-background medronate (MDP) bone images, wait no more. AN-MDP™, from Ackerman Nuclear, Inc., gives you all of the advantages of medronate—and a lot of medronate for your money.

Superior images
Medronate produces high-target-to-background scans that readily demonstrate altered osteogenesis.

- 90–94% blood clearance by two hours after administration
- Lowest soft-tissue uptake of all of the phosphonate bone agents in current use.¹

Convenience
- When necessary, imaging may begin an hour after injection (optimal imaging time is 1 to 4 hours).
- AN-MDP is stored and used at room temperature (15–30°C).

Economy
- You get 6 vials of reagent with each AN-MDP kit, instead of the usual 5.

A 54-year-old male with metastatic CA of the prostate was administered 15 mCi technetium Tc 99m-labeled AN-MDP. The images were recorded at 500K counts. Courtesy of Century City Hospital, Los Angeles.

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 compounds is known to complex cations such as calcium. Particular caution should be used with patients who have or who may be predisposed to hypocalcaemia (i.e., alkalosis).

Precautions. Contents of the vial are intended only for use in the preparation of Technetium Tc 99m Medronate and are NOT to be administered directly to the patient. 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 patients consistent with proper patient management.

To minimize radiation dose to the bladder, patients should be encouraged to drink fluids and to void immediately before the examination and as often thereafter as possible for the next 4–6 hours.

Technetium Tc 99m Medronate should be formulated within six (6) hours prior to clinical use. Optimal imaging results are obtained 1–4 hours after administration.

Carcinogenesis, mutagenesis, impairment of fertility. No long-term animal studies have been performed to evaluate carcinogenic potential or whether Technetium Tc 99m Medronate affects fertility in males or females.

Pregnancy category C. Animal reproductive studies have not been conducted with Technetium Tc 99m Medronate. It is also not known whether Technetium Tc 99m Medronate can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Technetium Tc 99m should be given to a pregnant woman only if clearly needed. Ideally, examinations using radiopharmaceuticals, especially those elective in nature, of a woman of childbearing capability should be performed during the first few (approximately 10) days following the onset of menses.

Nursing mothers. Technetium Tc 99m is excreted in human milk during lactation, therefore formula feedings should be substituted for breast feedings.
for those famous "MDP" scans.

- CUT WASTE. You can choose either single-dose or multidose vials to match your department's volume.
- For greater savings, both single-dose and multidose AN-MDP come in 30-vial ECONO-PAKs.

Join the hundreds of nuclear medicine departments who already enjoy the benefits of "MDP" scans. To place your order today, just call us collect: (213) 240-8555.


Ackerman Nuclear, Inc.
445 West Garfield Avenue
Glendale, CA 91204
(213) 240-8555

---

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

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.

**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 perchlorate Tc 99m injection, to be employed in the average patient (70 kg) is:

- Bone imaging: 10–20 mCi Technetium Tc 99m Medronate
- Scanning is optimal at about 1–4 hours post-injection. The patient dose should be measured by a suitable radioactivity calibration system immediately prior to administration.

**How supplied.** AN-MDP™ is supplied both in the single-dose and multidose form. Both are available in sets of 5 or 30 sterile and nonpyrogenic vials. Each nitrogen-flushed vial contains, in lyophilized form:

<table>
<thead>
<tr>
<th>Single dose</th>
<th>Multidose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medronic acid</td>
<td>5 mg</td>
</tr>
<tr>
<td>Stannous chloride (minimum)</td>
<td>0.25 mg</td>
</tr>
<tr>
<td>Maximum total stannous and stannic chloride</td>
<td>0.51 mg</td>
</tr>
</tbody>
</table>

The pH is adjusted to 5.0–5.5 with HCl and NaOH prior to lyophilization. Included in each 5-vial kit is one package insert and 32 radiation labels. In each 30-vial kit is one package insert and 60 radiation labels. Refrigeration is not necessary.

**Description**

<table>
<thead>
<tr>
<th>Description</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single dose 5-vial kit</td>
<td>K-401-S</td>
</tr>
<tr>
<td>Single dose 30-vial ECONO-PAK</td>
<td>K-402-S</td>
</tr>
<tr>
<td>Multidose 5-vial kit</td>
<td>K-401</td>
</tr>
<tr>
<td>Multidose 30-vial ECONO-PAK</td>
<td>K-402</td>
</tr>
</tbody>
</table>

AN-MDP™ is a trademark of Ackerman Nuclear, Inc.
A GOOD AUTOMATIC GAMMA COUNTER DOESN'T HAVE TO COST AN ARM AND A LEG!

Model 1000/1200 $4450.00

Two popular models, 24 and 48 sample capacity. No downtime — load one tray while the other counts. Big instrument performance at small price. Simple, compact, with proven reliability. After all, we've been building nuclear gamma counters for over 20 years. For free brochure, call or write today. Distributed by leading RIA pharmaceutical manufacturers.

NEW! Ask about our RIA Calculator using the Hewlett-Packard HP-97S.

THE NUCLEUS, INC.
P.O. Box R
Oak Ridge, TN 37830
615-483-0006, 482-4041
Tlx 557-482

THE JOURNAL OF NUCLEAR MEDICINE
AMR Presents

AccuSync

The finest R-wave Triggering device available for computerized gated cardiac studies.

FEATURES

- Exclusive Double Discrimination provides precise definition of R-wave.
- ECG Strip Chart Recorder
- Four digit LED Display
- Trigger Pulse LED
- Unlimited Heart Rate Capability
- ONE YEAR WARRANTY

BENEFITS

- Computer is gated only on the R-wave. High amplitude T-waves are ignored.
- Provides permanent record of patient ECG. Insures proper lead placement.
- Indicates R-R Interval or Heart Rate during stress studies.
- Monitors presence of output signals to the computer.
- Both Heart Rate display and R-trigger pulses have unlimited tracking capability during stress studies.
- ONE YEAR WARRANTY

MODEL

Features

AccuSync-I
R-Trigger pulse output, ECG output, Heart Rate/R-R int. display, Strip Chart Recorder and Isolation Amplifier for patient safety.

AccuSync-II
All above features incorporated into a Module designed to fit into certain Mobile cameras.

AccuSync-III
All AccuSync-I features with the exception of the Strip Chart Recorder.

AccuSync-IV
All AccuSync-III features with the exception of the Heart Rate R-R int. display.

Advanced Medical Research Corp./P.O. Box 3094 PPS/301 Brewster Road Milford, CT 06460/Telephone: (203) 877-1610
Stressing your needs... and your patients!

Hi-Lo Cardiac Stress Imaging System

A sensitive design for a sensitive test. The 8407 Hi-Lo stress system's "drop-leaf" ergometer is essential for radionuclide imaging with large field-of-view cameras. Drop the leaf for that needed margin of safety between patient and camera head—even with standard or mobile cameras.

Just one example of EDC's response to clinical problems—design solutions.

With your patient in a supine position, you may image continuously during myocardial stress perfusion scintigraphy or radionuclide exercise ventriculography. Add patient participation and eliminate incessant directions via a color-coded meter that allows self-monitoring of pedal speed.

A more relaxed, better-imaged patient. It adds up to better medicine.

The 8407 control console displays actual workload, pedal speed and elapsed time. Optional automatic heart-rate-control-of-workload enables the clinician to select the specific, individual heart rate at which cardiac stress imaging will be conducted.

The versatile table can be used for other nuclear imaging studies, radiology and ultrasound. Image from above or below table. Vari patient position—supine or sitting.

"Connect-able" Unit

To stay current and within your budget, attach the 8414 modular stress imaging unit to your present table for use in nuclear imaging or cardiac catheterization. The "Connect-able" includes multi-position ergometer and electronic control console with all options. Specially-designed casters provide easy mobility as well as rigid locking power.

EDC stress imaging systems... for the progressive nuclear medicine department... for the cardiologist who demands the diagnostic sensitivity of stress imaging.

Engineering Dynamics Corporation

120 Stedman Street
Lowell, Massachusetts 01851
Tel. (617) 458-1456
The timeless system

Quality diagnostic images and "planned evolution" make today's MaxiCamera™ II the nuclear system of choice. Modular electronics allow you to individualize your system while other options, like whole body capability and data processing meet expanding application needs.

Since emission computed tomography, ECT, is the next logical step in nuclear imaging, GE has developed the MaxiCamera 400T. This simple, economical detection system replaces the gimbal stand with a rotating gantry so the detector can acquire images from numerous angles around the patient.

MaxiCamera II/400T is one-of-a-kind—timeless because you can have an outstanding camera system for routine studies and future tomographic capability. It's "planned evolution" at work for you. Ask your GE representative.
Diagnostic Isotopes introduces
AUTO-MATE XENON GAS DISPENSER

Better... because of what you don't have to do!

- Transfer Xenon from one container to another
- Pump a handle to operate
- Puncture vial after it is attached to system
- Interrupt study to administer $O_2$
- Purchase expensive one-time use products

Yes, the Auto-Mate Xenon Gas Dispenser eliminates a lot of hassle now associated with Ventilation System studies. This new instrument from Diagnostic Isotopes offers the following advantages: simplifies loading; delivers Xenon by merely pressing a button; punctures vial automatically; delivers full dose in a one breath bolus, administers oxygen by simply reattaching dispenser to tubing and works with all delivery and trap systems. The Auto-Mate provides technician safety because the shipping container is the radiation shielding. Made of lightweight aluminum and brass for extreme durability.

Inquire about our complete Xenon Program
225 Belleville Ave., Bloomfield, N.J. 07003
201-429-7590 • Telex 133393 • Call Toll Free: 800-631-1260
The new working surface in solid phase RIA

Amerlex*
Announcing an important innovation in radioimmunoassay
Amerlex brings new standards in reliability and reproducibility to solid phase RIA. An aqueous solution containing $10^8$ polymer beads highly uniform in diameter. Amerlex presents a binding area up to five times greater than that provided by coated tubes. The antibodies are attached to the Amerlex particles by a uniquely optimized process for each assay.

**100 million uniform in size and surface to solid phase**

A SOLID PHASE SYSTEM with kinetics which give fast assays, high binding and excellent reproducibility.

**ONLY** three pipetting steps - no washing step.

**COMMON** separation system with similar protocols for several different assays.

**PARTICLES** robust but not abrasive - can be automated without damage to particles or pump.

**REDUCES** problems previously associated with solid phase systems to a minimum.

**THE FIRST** Amerlex* products will include T3, T4, Cortisol.

* Trademark.
particles, one, bring new reliability to RIA

The solid phase solution

The Radiochemical Centre Limited, Amersham, England. Telephone: 0244 44444
In the USA & Canada, Amersham Corporation, Illinois 60006
Telephone: 312/364-7100 and BOC/323-9750 (TOLL FREE)
in W Germany: Amerham Buchler GmbH & Co., KG-Braunschweig Telephone: 05307-4691
Why more small hospitals buy the imaging system owned by more large hospitals. Digital's Gamma-11.

Digital's Gamma-11 is found in more large teaching hospitals and research centers worldwide than any other nuclear medicine imaging system. And the reasons these hospitals prefer the Gamma-11 are no different from the reasons you should choose it.

Your first reason for choosing the Gamma-11 is beautifully simple. The Gamma-11 is designed for ease of use. The computer prompts you in English. So it's simple to learn, even if you don't know anything about computers. Nothing is mysterious, but you'll find the results remarkable.

To help you with your job it does two jobs at once.
On the screen you'll see dynamic or static images of single or multiple studies in color, monochrome or black and white. Or you can focus your attention on two different studies side by side for comparison. For instance, an image acquired at rest and stress, or pre- and post-operative. On every frame, positive patient identification automatically appears. But best of all, the Gamma-11 can both acquire and analyze data simultaneously, even in gated cardiac mode. Something no other imaging system can do without expensive additions.

Digital's Gamma-11 will acquire, process, store, and display information so expertly and thoroughly that you can diagnose your patient's problem faster. With a greater degree of accuracy.

The information acquired from the Gamma-11 is gathered on a disk pack which has a much greater capacity for permanent information storage than, for example, the smaller alternative floppy disk.

Also the disk, unlike the floppy, allows you to acquire data in both matrix and list mode.
Digital can help you learn from the experienced.

In addition to clinical applications available from medical software firms, you can also get application packages from Digital and other Gamma-II users. Such as the large teaching hospitals. So in effect, you'll be benefiting from their experience.

And many teaching hospitals have been using Gamma-II systems since 1971. Which means that, in demanding circumstances, and over a lengthy period of time, Digital's system has proven itself in both reliability and performance.

The Gamma-II comes with the acquisition software you'll need. Digital will provide on-site training plus information concerning university-based clinical training courses on the Gamma-II.

Find out more. Fill out and mail this coupon today. You'll soon see that with the flexibility and reliability of the Gamma-II, the nuclear medicine imaging system found in more of our large hospitals is more than ideal for your hospital.

We'll support you with the IMAGE, so you'll see new developments.

All Gamma-II owners receive the IMAGE, a newsletter for Gamma users from the Medical Systems Group at Digital. It's a forum for communicating with your peers and with the Medical Systems Group about significant developments involving Gamma-II systems.

You'll read articles by users and be informed of upcoming symposia, shows, and meetings of relevance to Gamma-II owners. So that at all times you'll be aware of new techniques and innovations in nuclear medicine as they relate to computer-operated imaging systems.

As your department grows, so grows the Gamma-II.

What's more, the Gamma-II is expandable. In fact our imaging system can accommodate up to three additional gamma cameras without requiring expensive interfaces. Since it's the finest on the market, you can easily and economically adapt the Gamma-II to meet your growing needs. You don't have to worry about obsolescence either, as the first Gamma-II installed 9 years ago is still up and running.

The imaging system for my hospital must be both flexible and easy to use. Send more information on the Gamma-II immediately!

Name
Title
Department
Hospital
Address
City State Zip

Digital Equipment Corporation, MS-1, Attention: Mary Miller, Medical Systems Group, MR2-8/E70, One Iron Way, Marlboro, MA 01752.
"Make the best available better!"

"Work on the ultimate, but in the meantime, make the best available better."

Our people have always accepted the challenge and it's what makes us the leader.

We agree that all things considered the Landauer Gardray 8 film badge system is the best available personnel dosimeter. And, although we are always looking for the ultimate, we have continued to work hard and invest money and time to make it better.

Greatly simplified ordering procedures – permanently encoded unique numbering of film, which is independent of film darkening – new improved techniques for analyzing the film for anomalies that may affect the "meaning" of the exposure and new N.R.C. annual statistical summary reports available now, are just some of the ways our people are working hard to make it better for you.

Write or call for more details.

Landauer

R.S. LANDAUER JR. & CO. A Tech-Ops Company
Glenwood Science Park
Glenwood, Illinois 60425 . (312) 755-7000
self photograph of Union Carbide Nuclear Products' 5-megawatt nuclear reactor in operation. The blue glow emitted from the reactor is known as Compton radiation. The reactor is used in research and to produce radiochemicals such as Molybdenum 99 and Xenon 133 for the manufacture of radiopharmaceuticals.

FROM ATOM...
EVERYONE IS CONCERNED WITH PATIENT EXPOSURE. OUR CALIBRATOR IS CONCERNED WITH YOURS.

Our CRC-30 calibrator has a calibration chamber that can be physically isolated from the rest of the unit, thereby sparing you unnecessary doses of radiation. An important feature, in this age of radiation safety enlightenment.

But then, everything our CRC-30 does is designed to limit radiation exposure. From the built-in computer, which pre-calibrates, a whole day's worth of doses at one shot; to our QC analyzer that insures correct target to non-target ratios.

Get all the facts on our CRC-30. Write: Capintec, Inc., 136 Summit Avenue, Montvale, NJ 07645. (201) 391-3930. Call Toll Free (800) 631-2557. TELEX 642375 CAPINTEC MTLE.

CH CAPINTEC
THE MEASURE OF EXCELLENCE.
Is your lab safe?

If you work with radioactive Xenon, monitor your room air continuously.

Use the dependable TRITON Model 133 Xenon Gas Monitor to be sure that radioactive Xenon is not leaking into your room air.

The Model 133 detects $^{133}\text{Xe}$ levels in room air or Xenon trap output. Sensitivity to better than 1/5 the maximum 40 hour airborne concentration ($1\text{ MPC} = 10\mu\text{Ci/m}^3$) specified by the U.S. Nuclear Regulatory Commission (10 CFR 20.103).

Reads 0.1 to 100 MPC of $^{133}\text{Xe}$. Features a large, easy-to-read panel meter, visual and audible alarm, and a recorder. A recorder chart will document the exposure record of your personnel: firm documentation for NRC or State inspections.

For complete specifications, write or call:

Johnston Laboratories
Cockeysville, Maryland 21030 USA
Phone: (301) 666-9500 / Cable: JOHNLAB
Up to now, if you wanted good CRT image recording from computed tomography, ultrasound 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, ultrasound 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.
Just Published!

NUCLEAR MEDICINE REVIEW SYLLABUS Peter T. Kirchner, M.D., Editor

Designed to help physicians bring themselves up to date in all areas of clinical practice in nuclear medicine, this brand new, 619 page book provides a thorough update on methodological advances that have occurred in nuclear medicine since the early 1970's.

The Nuclear Medicine Review Syllabus has chapters titled: Radiopharmacology; Instrumentation; Radiation Effects and Radiation Protection; Cardiovascular; Central Nervous System; Endocrinology; Gastroenterology; Genito-Urinary System; Hematology-Oncology; Pulmonary; Radioassay; and Skeletal System.

The clear prose of each of the book's 12 chapters describes advances and outlines current practice, with a detailed bibliography at the end of each chapter serving as a guide to additional information. A 32-page index makes the Nuclear Medicine Review Syllabus' wealth of information instantly accessible. Individuals seeking a vehicle for final review prior to taking a certification (or recertification) examination will find the Nuclear Medicine Review Syllabus particularly valuable.

Soft cover, 619 pages, $30.00 plus $2.50 postage and handling.


This 867 page, copiously illustrated, large format volume has chapters titled: Quality Control; Organic Radiopharmaceuticals; Inorganic Radiopharmaceuticals; Functional Imaging; Radioimmunoassay; Oncology; Hematology; Pharmacokinetics; Renal; Cardiopulmonary System; RES: Biliary; Skeletal; Thyroid; Pancreas; Prostate and Adrenals; and Radionuclide Production. For each of these chapters, Radiopharmaceuticals II has an introductory paper summarizing the state of the science in the field. The introductory papers are supplemented by papers describing current research. Also included in the book are papers from a panel discussion entitled "International Regulatory Affairs Relating to Pharmaceuticals," and excerpts from the keynote address given by former AEC Chairman and now Governor of the State of Washington, Dixy Lee Ray.

Soft cover, 867 pages, $40.00 plus $2.50 for postage and handling.

RADIOPHARMACEUTICALS, Gopal Subramanian, Ph.D. et al, Editors.

Hardcover, 555 pages, $30.00 plus $2.50 postage and handling.

THE HERITAGE OF NUCLEAR MEDICINE

Soft cover, 185 pages, $14.50 plus $2.50 postage and handling.

NUCLEAR MEDICINE SCIENCE SYLLABUS

Loose-leaf plus binder, 169 pages, $30.00 plus $2.50 postage and handling.

NUCLEAR CARDIOLOGY: Selected Computer Aspects

Soft cover, 213 pages, $12.50 plus $2.50 postage and handling.

SPECIAL OFFER! Purchasers of Radiopharmaceuticals II may order Radiopharmaceuticals for only $10.00 more. A $20.00 savings! (Total cost: $50.00 plus $5.00 postage and handling.) Just check off "Radiopharmaceuticals Special Offer" on the coupon below.

MAIL TO: Book Order Dept., Society of Nuclear Medicine, 475 Park Avenue South, New York, NY 10016.

_____Nuclear Medicine Review Syllabus ($30.00)
_____Radiopharmaceuticals II ($40.00)
_____Radiopharmaceuticals ($30.00)
_____Radiopharmaceuticals SPECIAL OFFER (2 books - $50.00)
_____The Heritage of Nuclear Medicine ($14.50)
_____Nuclear Medicine Science Syllabus ($30.00)
_____Nuclear Cardiology: Selected Computer Aspects ($12.50)

FOREIGN ORDERS ADD $7.50
POSTAGE AND HANDLING ($2.50 per book)
TOTAL ENCLOSED.

SEND TO:
NAME__________________________________________
ADDRESS________________________________________
CITY__________________________________________STATE________ZIP_____________________

Check or purchase order must accompany all orders. Please make checks payable to Society of Nuclear Medicine, Inc. U.S. funds only, please.
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 Generator
(Technetium Tc 99m)
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.

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.

DOSSAGE 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 indicators 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.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Grains</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0.25</td>
</tr>
<tr>
<td>101</td>
<td>0.50</td>
</tr>
<tr>
<td>102</td>
<td>0.75</td>
</tr>
<tr>
<td>103</td>
<td>1.0</td>
</tr>
<tr>
<td>104</td>
<td>1.5</td>
</tr>
<tr>
<td>105</td>
<td>2.0</td>
</tr>
<tr>
<td>107</td>
<td>2.5</td>
</tr>
<tr>
<td>108</td>
<td>3.0</td>
</tr>
</tbody>
</table>

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
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 ± 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 Marledale Rd. / Tuckahoe, N.Y. 10707
(914) 961-8484

Medi-Ray, Inc.
Tomographic thallium imaging

Robert A. Vogel, MD
Associate Professor of Medicine
University of Colorado Health Sciences Center
Director, Coronary Care Unit and Medical Intensive Care Unit
Denver VA Medical Center

Dennis L. Kirch, MSEE
Assistant Professor of Radiology
University of Colorado Health Sciences Center
Research Engineer
Denver VA Medical Center

The initiative for tomographic thallium imaging arises from the segmental nature of coronary artery disease—which typically affects one portion of the myocardium more severely than others. An ischemic area of the heart that takes up less thallium may overlap or underlie another, normally perfused region. Planar imaging may resolve small deficits juxtaposed to normally perfused myocardium only with difficulty. Tomographic imaging may enable spatial separation of high- and low-uptake regions at different depths, thereby providing a better image of regional ischemia.

Thallium myocardial tomography provides advantages in addition to a series of depth-separated Z-axis images of relative isotope uptake. It ensures that the entire study is acquired as early as possible after injection, before any significant redistribution takes place, because only a single left oblique view is required to provide the data on regional thallium uptake provided in planar imaging by multiple views. And possibly of greatest importance, the technique permits objective computerized quantification of regional isotope uptake and redistribution—circumferential profile analysis—simplifying detection and interpretation of regional differences in thallium redistribution.

These three attributes together—Z-axis resolution, single-view image acquisition, and objective regional quantification—have increased the sensitivity and specificity of thallium myocardial perfusion imaging in our department to 90% or better.

Optimum utilization of this imaging/image-processing technique requires a thorough technical appreciation of several features of the tomographic collimator and software.

The seven-pinhole collimator

The seven-pinhole collimator is not a completely revolutionary or untried concept; rather it represents the combination of two well-accepted concepts in order to better image the thallium-perfused myocardium: single-pinhole collimation and rotating slant-hole collimation. A single-pinhole collimator can produce superior magnified myocardial images with only a minimal contribution from noncardiac background, but its low sensitivity lengthens acquisition time so much that significant redistribution may occur before a view is complete. The rotating slant-hole collimator was pioneered early in the development of the Anger camera as a technique to produce tomographic images. But it is a cumbersome device that is difficult to utilize rapidly and repeatedly, and uses a simple back-projection tomographic reconstruction technique unsatisfactory for myocardial imaging.

The seven-pinhole collimator represents a combination of these two techniques. By projecting seven pinhole images on the crystal, several advantages are gained:

- Instead of projecting a single image onto perhaps 10% of the camera crystal, and imaging background counts with the remaining 90%, the seven-pinhole collimator can project seven 1:1 myocardial images with very little noncardiac background contribution. This full utilization of the crystal for organ imaging makes the seven-pinhole collimator comparable in sensitivity to a high-sensitivity standard collimator...capable of collecting up to 750,000 myocardial counts within 10 minutes.
- Instead of developing angular perspective by taking several sequential planar views, or by rotating a slant-hole collimator, the seven-pinhole collimator uses the seven pinholes to simultaneously view the heart from slightly different angular perspectives, from which computer processing can provide tomographic reconstruction.

To these collimator-derived benefits, one must add two benefits from the quantitative analysis of seven-pinhole imaging: enhanced subjective confidence in the presence or absence of perfusion deficits on the displayed images and objective quantification of relative thallium distribution and redistribution kinetics in each of the important tomographic planes through the myocardium.
The impedance-estimation algorithm

Traditionally, tomographic nuclear images have been reconstructed by back projection, as in the original rotating slant-hole system, and in the Searle PhoCon. More complete, faster processing—with iterative capability for error correction—results from the use of the impedance-estimation technique of the seven-pinhole program.

The basic principle of this program is that a voxel, a volume element in space, has been viewed from seven points projected through pinholes onto the crystal. The program applies an impedance-estimation algorithm to the summing of the seven perspectives of each voxel, so that the lowest number of counts detected from any one perspective will dominate the greater counts detected from the other six—much as a single low-resistance resistor will conduct more current than numerous high-resistance elements in a parallel electrical circuit.

We believe this impedance-estimation program provides an initial estimate of real voxel value that is closer to actual isotope distribution than is possible with simple back projection. With a single 1- to 2-minute iterative pass to refine this estimate, the algorithm provides an accurate derivation of isotope distribution in a specific tomographic plane. Thus, the clinician can be confident that any perfusion defect which can be resolved by the camera/collimator is certain to be detected and displayed on the resultant "hard" image... without substantial degradation by overlying or surrounding normally perfused tissue, or by redistribution during image acquisition.

Circumferential quantification

Circumferential profile analysis of thallium-201 tomographic images may significantly increase the accuracy of evaluating regional thallium uptake and comparing uptake/redistribution kinetics. This quantification technique defines the center of the left ventricle, divides the myocardium into a predetermined number of segments, then quantitatively plots the relative thallium uptake in each segment against its angular location on the left ventricular wall. The procedure, as performed at the Denver VA Medical Center, permits objective comparison of stress/redistribution uptake curves—even in regions where ischemia cannot confidently be diagnosed solely by visual examination of the images.

In summary, the tomographic process reduces patient imaging time and, in our experience, has enabled improved visualization of segmental abnormalities in thallium-201 distribution, and has offered a means of data presentation well suited to quantitative interpretation and correlation.

Please see following page for brief summary of prescribing information.
MIRD PAMPHLETS AVAILABLE
(Medical Internal Radiation Dose)

PAMPHLETS
1 (Revised) A revised schema for calculating the absorbed dose from biologically distributed radionuclides. ($5.25)
2 (Revised) Estimates of specific absorbed fractions for photon sources uniformly distributed in various organs of a heterogeneous phantom. ($7.75)
3 Radionuclide decay schemes and nuclear parameters for use in radiation-dose estimation. ($8.00)
4 ‘S’ absorbed dose per unit cumulated activity for selected radionuclides and organs. ($11.00)
5 Kinetic models for absorbed dose calculations. ($5.25)

SUPPLEMENTS
1 Includes 3 pamphlets: “Schema for absorbed dose calculations for biologically distributed radionuclides.” “Energy deposition in water by photons from point isotropic sources,” and “Absorbed fractions for photon dosimetry.” ($1.50)
2 Includes the original pamphlet #5: “Estimates of absorbed fractions for monoenergetic photon sources uniformly distributed in various organs of a heterogeneous phantom.” ($1.50)
3 Includes 2 pamphlets: “Distribution of absorbed dose around point sources of electrons and beta particles in water and other media”; and “Absorbed fractions for small volumes containing photon-emitting radioactivity.” ($1.50)
4 Includes pamphlet 9: “Radiation dose to humans from 32P-Selenomethionine.” ($3.00)

SPECIAL OFFER
All available MIRD pamphlets and supplements for only $25.00 plus $4.00 for shipping and handling.

Attractive binders for the pamphlets and supplement #1 are available at $4.50 each.

MIRD Pamphlets and Supplements may be ordered from Book Order Dept., Society of Nuclear Medicine, 475 Park Avenue South, New York, NY 10016. All orders must be prepaid or accompanied by a purchase order. Checks must be in U.S. funds only, please.

Mail to: Book Order Dept., Society of Nuclear Medicine, 475 Park Avenue South, New York, NY 10016. Make checks payable to: Society of Nuclear Medicine, Inc., U.S. funds only, please.

PAMPHLETS SUPPLEMENTS SPECIAL OFFER
1 ($5.25) 1 ($1.50) $25.00 plus
2 ($7.75) 3 ($1.50) $4.00 (for shipping & handling. (Does not include binder.)
3 ($8.00) 5 ($1.50)
4 ($11.00) 6 ($3.00)
5 ($15.25) 12 ($5.25)

BINDERS $4.50 each

SHIPPING AND HANDLING CHARGES
1 item $1.00
2 items $2.00
3 items $3.00
4 items $4.00
10-19 items $6.00
20-29 items $8.00
30-39 items $10.00
40-49 items $12.00

TOTAL $5.00

SHIPPING & HANDLING CHARGES $7.50
TOTAL ENCLOSED $
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 dosecalibrator, a reliable dosecalibrator, an economical dosecalibrator.

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 dosecalibrator you'll ever own.

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

POSITIONS OPEN

NUCLEAR MEDICINE TECHNOLOGIST
Phoenix, Arizona. Large 695-bed hospital has immediate opening for full-time Nuclear Medicine Technologist. ASCP, ARRT, or NMTCB. Excellent benefits. For further information, write: Mr. John J. McDonald, Personnel Director, Good Samaritan Medical Center, 1033 E. McDowell Rd, Phoenix, Arizona 85006, or call (602) 257-4247.

NUCLEAR PHARMACIST-STAFF PO
Phoenix. Excellent opportunity available immediately in centraly located nuclear pharmacies. Excellent fringe benefits program. Salary commensurate with experience. Send resume to: Maria Martinez, Personnel Department, Good Samaritan Hospital, 1033 E. McDowell Rd, Phoenix, Arizona 85006, or call (602) 257-4247. Equal opportunity employer.

NUCLEAR MEDICINE TECHNOLOGIST
Immediate opening for full-time position as a progressive 41 bed teaching hospital near downtown Los Angeles. Will work with up to date, ultra modern nuclear medicine equipment. Must be registered. Send resume and salary history to Personnel Department, Nuclear Pharmacy Inc., P.O. Box 25141, Albuquerque, N.M. 87125, or call (505) 292-5820. EOE.

NUCLEAR MEDICINE TECHNOLOGIST
Immediate opening for full-time position at a progressive 41 bed teaching hospital near downtown Los Angeles. Will work with up to date, ultra modern nuclear medicine equipment. Must be registered. Send resume and salary history to Personnel Department, Nuclear Pharmacy Inc., P.O. Box 25141, Albuquerque, N.M. 87125, or call (505) 292-5820. EOE.

NUCLEAR MEDICINE TECHNOLOGIST
Full-time position in Nuclear Medicine available at Veterans Administration Medical Center, Martinez, CA. Applicants must have a minimum of one year of experience as a nuclear medicine technologist on a medical radiation unit. Must be registered. Salary and benefits negotiable. For further information, contact Dr. Robert E. Sturm, Chief, Nuclear Medicine, VAMC Martinez, P.O. Box 890010, Martinez, CA 94538-0010.

NUCLEAR MEDICINE TECHNOLOGIST
Full-time position in Nuclear Medicine available at Veterans Administration Medical Center, Martinez, CA. Applicants must have a minimum of one year of experience as a nuclear medicine technologist on a medical radiation unit. Must be registered. Salary and benefits negotiable. For further information, contact Dr. Robert E. Sturm, Chief, Nuclear Medicine, VAMC Martinez, P.O. Box 890010, Martinez, CA 94538-0010.

NUCLEAR MEDICINE PHYSICIAN
Division of Nuclear Medicine, Grady Memorial Hospital, Emory University School of Medicine, Atlanta, Georgia. Academic position requiring American Board, ACR, ABNM, ACM certifics. or equivalent diagnostic training. Submit resume to: Dr. T. E. Y. Tsay, Division of Nuclear Medicine, 1150 Whitehead Bldg., Atlanta, Georgia 30322.

NUCLEAR MEDICINE DIRECTOR
Division of Nuclear Medicine, University of North Carolina, Chapel Hill. Submit resume to: Dr. William E. Nelson, Division of Nuclear Medicine, University of North Carolina, Chapel Hill, NC 27514.

NUCLEAR MEDICAL TECHNOLOGIST
Full time position available for a registered or regis

Calif: Experienced IRA Tech wanted full-time for established RIA lab in central Calif. City of 100,000. CA licensure, ASCP or RNMT required. Competitive salary and benefits. Contact Mr. David LaRosa, Gould Medical Group, 600 Coffee Road, Modesto, CA 95355 or (209) 524-1211.

NUCLEAR MEDICINE, UNIVERSITY OF Washington, Seattle, Washington: Considering candidates to enter residency in July 1981 and 1982, leading to NM Board eligibility. Comprehensive basic science and clinical experience. In Vitro, Metabolism, Imaging, Therapy, Cardiology, CAT, and Ultrasound. Large patient referral, excellent facilities. Research opportunities. For details contact Dr. Curtis B. Shafer, M.D., Director, Division of Nuclear Medicine, University Hospital, RC-70, Seattle, WA 98195. Phone: (206) 543-3576.

NUCLEAR MEDICINE PHYSICIAN, Division of Nuclear Medicine, Grady Memorial Hospital, Emory University School of Medicine, Atlanta, Georgia. Academic position requiring American Board, ACR, ABNM, ACM certifics. or equivalent diagnostic training. Submit resumes to: Emory University, Department of Radiology, Attn: Dr. T. E. Y. Tsay, Division of Nuclear Medicine, 1150 Whitehead Bldg., Atlanta, Georgia 30322.

NUCLEAR MEDICINE PHYSICIAN
Division of Nuclear Medicine, University of North Carolina, Chapel Hill. Submit resume to: Dr. William E. Nelson, Division of Nuclear Medicine, University of North Carolina, Chapel Hill, NC 27514.

NUCLEAR MEDICAL TECHNOLOGIST
Full time position available for a registered or regis
ter eligible technologist in a 365 bed acute care hospital. Modern well equipped lab including 2 cameras and a computer. Excellent salary and employee benefits. Interested persons should contact the Personnel Office, Lafayette Home Hospital, 2400 South St., Lafayette, Indiana 47902. (317) 447-6811.

NUCLEAR MEDICINE TECHNOLOGIST
Immediate opening for a Nuclear Medicine Technolog

RADIOLOGIST, NUCLEAR MEDICINE
Board certified/eligible, university trained, with nuclear cardiology background. Competent 14-man private diagnostic radiology group in South-eastern United States. Prefer physicians knowledgeable in general diagnostic nuclear cardiology including computed tomography and ultrasound. Contact Dr. D. Mills, M.D., Suite 100, Memorial Medical Bldg., Chattanooga, TN 37404, phone (615) 698-3511.

GEORGETOWN UNIVERSITY HOSPITAL, Washington, D.C. Full time position available beginning July 1, 1981 for continuous involvement in research and training in all aspects of Nuclear Medicine. The program is approved by the AAMI and is supported by funds from the American Board of Nuclear Medicine. Requests for further information (include CV) should be directed to: John C. Howcroft, M.D., Director, Division of Nuclear Medicine, Georgetown University Hospital, Washington, D.C. 20007.

ASSISTANT CHIEF, NUCLEAR MEDIC
icine service. The Minneapolis Veterans Administra
tion Medical Center seeks candidate for the position of Assistant Chief, Nuclear Medicine Service effective July 1, 1980. Requirements include certification by the ABNM, a strong patient orientation and expertise in all aspects of nuclear medicine, including imaging, radiotherapy, and internal radiation therapy. In addition, the Assistant Chief, Nuclear Medicine Service, will have specific responsibilities in research and education. Applications from all qualified candidates are welcome. Inquiries, preferably a curriculum vitae and an autobiographical letter, should be sent to: Rex B. Shafer, M.D., Chief Nuclear Medicine Service (J-6), Veterans Administration Medical Center, 45th Street & 48th Ave. South, Minneapolis, MN 55417. An Equal Opportunity Employer.

NUCLEAR MEDICINE TECHNOLOGIST
Florida Medical Center a 400-bed acute care facility has positions available in its progressive nuclear medicine department. Equipment includes Searle LFOU, LEM, Photonic-PG-4 Cam-Era, and a Trans Axial Scanner. Candidate and computer experience recommended but not required. Excellent salary and benefits. In

CONFIDENTIAL SERVICE NATION
Wide. 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, S.C. 29206. (803) 787-8710.

NUCLEAR MEDICINE OPPORTUNITY: Expanded Nuclear Medicine Service has advertised this opportunity to join the staff of one of the nation's largest pediatric facilities. Our progressive Nuclear Medicine Department includes a well equipped imaging section, active nuclear cardiology service and ultrasound. Position will involve staff technologist responsibilities although duties may expand to include ultrasound, computer applications and additional special projects, for experienced candidates. Qualified applicants must be certified eligibility, experience a plus. If you seek a position in a challenging personal and professional growth send resume to: Employment Supervisor, Milwaukee Children's Hospital, 1700 W. Wisconsin Ave., Milwaukee, WI 53223. An Equal Opportunity Employer.

ACADEMIC POSITION AT THE ASSOC
ate or Assistant Professor level. Applicants for the Nuclear Radiology Division of the Department of Radiology at the University of Texas Medical School at Houston. Certification in Radiology and Nuclear Medicine, or in Radiology with Special Competence in Nuclear Radiology is required. Applicant should have a sincere interest and a performance record in relevant clinical or basic nuclear research. Send curriculum vitae to Robert W. McConnell, M.D., Director, Division of Nuclear Radiology, Department of Radiology, The University of Texas Medical School at Houston, 6431 Fannin Street, Houston, Texas 77030.

NUCLEAR MEDICINE, FRESNO CALIF
niversity of California (San Francisco) Medical Education Program seeks a Nuclear Medicine Physician for an expanding service at its affiliated Veterans Administration Medical Center in Fresno, CA. Certification (or Eligibility) by ABNM desired. Strong existing programs in Cardiology and Pulmonary Disease make a background in Internal Medicine highly desirable. The position combines active clinical teaching and patient care in an academic setting with opportunity for private practice. Inquiries to: Malcolm Jones, M.D., Chief of Radiology, Veterans Administration Medical Center, 2613 E. Clinton Avenue, Fresno, CA 93702. An equal opportunity university of California is an Equal Opportunity Employee.
NUCLEAR MEDICINE TECHNOLOGIST
Opening in August 1980 for a Full Time Nuclear Medicine Technologist in an 80 bed acute care hospital. Applicant must be certified by ARRT or eligible. Perform all types of exams, daily calibrations and quality control tests on equipment. Responsible for technique charts and maintaining departmental records and files. Located in Ventura County, Southern California, close to mountains and beaches. Contact Personnel, Pleasant Valley Hospital, 2309 Antonio Avenue, Camarillo, CA 93010.

NUCLEAR MEDICINE TECHNOLOGIST
Immediate opening for a staff technologist to provide a broad range of imaging procedures. The imaging laboratory consists of three scintillation cameras and an MDS computer system. Unexcelled outdoor recreational opportunities. Competitive salary and benefits. Contact Paul E. Christian, Nuclear Medicine, University of Utah Medical Center, Salt Lake City, Utah 84132. (801) 581-2665.

RADIOLOGIST, BOARD CERTIFIED in Nuclear Medicine, to join large multi-specialty prepaid medical group. Opportunity to expand department and plan department for new hospital in 1984. Salary negotiable. Liberal fringe benefits. Contact: Hawaii Permanent Medical Group, Inc. 1697 Ala Moana Boulevard, Honolulu, Hawaii 96815. (An Equal Opportunity Employer.)

NUCLEAR MEDICINE TECHNOLOGIST.
One (1) full-time position requires B.S. graduate that has completed an approved Nuclear Medicine program. Either registered or registry eligible & have one (1) year demonstrable clinical experience in all phases of Nuclear Medicine methodologies. We offer excellent salary & benefits package that includes free health insurance coverage with dental option for you & your immediate family. Tuition assistance & free lighted parking. For more information, & to arrange a personal interview, call Mrs. Fisher, after 9 a.m., (202) 574-6641. Greater Southeast Community Hospital, 1310 Southern Avenue, Southeast, Washington, D.C. 20032. DOE M/F.

NUCLEAR MEDICINE TECHNOLOGIST or Registered X-Ray Technician, with imaging experience, for Midwestern mobile medical scanning service. Position requires daily travel to area hospitals with mobile scanning equipment. Salary commensurate with experience and education. Excellent corporate fringe benefits. Positions currently open in our Sioux Falls base office and Ankeny, Iowa, branch office. Send resume to Arlo Flanders, Personnel Director, Laboratory of Clinical Medicine, 1212 South Euclid Avenue, Sioux Falls, S. Dak., 57105. Or call 1-800-843-6811.

POSITIONS WANTED

RADIOPHARMACIST. UNIVERSITY OF NEW MEXICO RESIDENCY AFFILIATION, SEeks position. Reply Box 500, Society of Nuclear Medicine 475 Park Ave. South, N.Y., N.Y. 10016.

M.D. RECENTLY FINISHED UNIVER-SITY Nuclear Medicine residency; previous residency in Pathology. Seeks to relocate in West but will consider any location or type practice. Available immediately. Reply Box 502, Society of Nuclear Medicine, 475 Park Ave. So., N.Y., N.Y. 10016.

REGISTERED NUCLEAR MEDICINE TECHNOLOGIST (ASCAP and NMTCB) with BS Degree (Business Administration). Experienced in vitro/nuclear imaging/cardiovascular. Currently Nuclear Medicine Manager at community hospital. Also a registered/licensed Medical Technologist with teaching experience. Desires to relocate to San Francisco peninsula. Contact: John Early, 1737-A Olive, El Centro, CA 92243.

NUCLEAR MEDICINE PHYSICIAN ABNM seeks relocation. Experience in teaching and practicing. Internal medicine background. Will consider university or community hospital. Reply Box 503, Society of Nuclear Medicine, 475 Park Ave. South, N.Y., N.Y. 10016.

BUY AND SELL


WOULD LIKE TO PURCHASE USED portable camera. GE Porta Camera preferred. Call (318) 984-9446.

PICKER DYNACAMERA 2C WITH 4 collimators, dual isotope, other essential accessories. Excellent condition. Contact Dick Czerwonka (502) 895-2755 for complete details.


RESIDENCIES IN NUCLEAR MEDICINE
The Department of Radiology at Harvard Medical School invites applications to its two- and one-year residency programs in nuclear medicine and radiology for 1981.

Further requests should be directed to S. James Adelstein, M.D., Ph.D., Director, The Joint Program in Nuclear Medicine, Department of Radiology, Harvard Medical School, 25 Shattuck Street, Boston, MA 02115.

An Affirmative Action/Equal Opportunity Employer

NUCLEAR MEDICINE TECHNOLOGIST
Position open in a 350-bed medical center located in Upstate N.Y. for a registered or registry-eligible person to work in a well-equipped nuclear medicine facility. Excellent fringe benefits. Salary range $11,200-$13,000, commensurate with experience. Please reply Box 504, Society of Nuclear Medicine, 475 Park Avenue South, New York, New York 10016.

JOHNSTON-WILLIS HOSPITAL
2908 KENSINGTON AVENUE
RICHMOND, VIRGINIA 23221
(804) 359-9111 ext. 255

Johnston-Willis Hospital located in historic Richmond, Virginia is nearing completion of an entirely new 292 bed acute care facility scheduled to open June 1980.

We are seeking a staff nuclear medicine technologist who is registered or registry eligible to work in this progressive department.

Johnston-Willis Hospital offers salary commensurate with experience plus excellent company benefits such as paid vacation, sick leave, free health and life insurance, and more.

Contact Bonnie Shoaf, Employment Coordinator
NUCLEAR MEDICINE TECHNOLOGIST
We have an immediate opening in our ideal Southern California location for an experienced Nuclear Medicine Technologist. Responsibilities will include setting up scans and in running general nuclear medicine laboratory tests. Applicant must be registered in nuclear medicine; college degree in science preferred. We offer an excellent starting salary of $1343.50/1454.61 mo. plus outstanding benefits including prepaid health and dental for yourself and eligible dependents, life insurance, retirement plan and tuition reimbursement. Please apply:

KAISER-PERMANENTE
Employee Relations 4725 Sunset Blvd., Annex
Los Angeles, CA 90027 (213) 667-6932
Equal Opportunity Employer M/F

NUCLEAR MEDICINE TECHNOLOGIST
Registered or registry eligible technologist for full time position in modern 410 bed acute care hospital. St. Mary’s is located in a city of 100,000 midway between St. Louis and Chicago. Contact Personnel Office, St. Mary’s Hospital, 1800 E. Lake Shore Drive, Decatur, IL. (217) 429-2966.

ANNOUNCING
AMERICAN COLLEGE
OF NUCLEAR PHYSICIANS
1980
R.I.A. PROFICIENCY TESTING PROGRAM
RAS-1
($100/yr)
Single vial providing 5 ml. when reconstituted. Constituents: Cortisol, Digoxin, Triiodothyronine (T3), T3 uptake (developmental), Thyroxine (T4), Free T4, Compensated T4 (developmental), Thyroid Stimulating Hormone (TSH), Thyroxine Binding Globulin (TBG), Insulin, Human Growth Hormone (HGH), Follicle Stimulating Hormone (FSH), Luteinizing Hormone (LH), Folic Acid, Vitamin B-12, Gastrin, Ferritin, Tobramycin.

RAS-2
($140/yr)
Two identical vials, each providing 5 ml. when reconstituted. Constituents identical to RAS-1.

SHIPPED QUARTERLY
For information call (202) 857-1135 or write:
AMERICAN COLLEGE
OF NUCLEAR PHYSICIANS
1101 Connecticut Avenue, N.W. Suite 700
Washington, D.C. 20036
New Clinical Applications and Physical Principles

All aspects of positron, single-photon and pinhole emission tomography are covered in depth in chapters by leading experts in the United States, Canada, and Europe. Authors include:

- Robert H. Ackerman, M.D.
- Gordon L. Brownell, Ph.D.
- Robert E. Henkin, M.D.
- Ronald J. Jaszczak, Ph.D.
- David E. Kuhl, M.D.
- Niels Lassen, M.D.
- Michael E. Phelps, Ph.D.
- Claude E. Raynaud, M.D.
- Martin Reivich, M.D.
- Heinrich R. Schelbert, M.D.
- Andrew Selwyn, M.D.
- H. William Strauss, M.D.
- Salvador Treves, M.D.
- Michael J. Welch, Ph.D.
- Lucas Yamamoto, M.D.

The book will be published in July. Order a copy today at the special prepublication price of $20.00 (Regular price after July 1st: $28.00). Order must be accompanied by check or purchase order. Make check payable to G & T Management, Inc. and mail to 211 East 43rd St., Suite 302, New York, New York 10017.

Name  
First  
Last  
Degree

Business Address

City  
State  
Zip

Enclosed please find a check or purchase order for $_______.

EDUCATIONAL AND RESEARCH ASSISTANT IN NUCLEAR MEDICINE

Position available for registered technologist or individual with bachelors degree and experience in nuclear medicine to assist in compilation and analysis of basic science and clinical research data, medical photography, preparation of scientific exhibits and audiovisual aids, and manuscript editing. A good background in English, statistics, and medicine is desirable. Our laboratory serves patients in a 1000 bed hospital and is actively involved in basic science and clinical research, particularly instrumentation and computer-based cardiovascular imaging. Through our affiliation with Baylor College of Medicine we participate in the training of physicians and nuclear medicine technologists. For information contact John A. Burdine, M.D., Nuclear Medicine Service, St. Luke's Episcopal Hospital, Houston, Texas 77030. Phone: (713) 791-2272.

NUCLEAR MED TECHS

Desert Hospital, in beautiful Palm Springs, California has recently expanded to meet the health care needs of this growing area.

This expansion has created openings for Nuclear Med Techs. These openings require ARRT, NMTC, and one year staff experience. Day shift.

Please contact DESERT HOSPITAL, P.O. Box 1627, Palm Springs, CA 92263 or call collect (714) 323-6267.
NUCLEAR MEDICINE HAS A NATIONAL PLACEMENT SERVICE?

YES!

HEALTH TECHNOLOGIST PLACEMENT SERVICE

TECHNOLOGISTS: WE CAN HELP. LET US KNOW IF YOU NEED EMPLOYMENT. WE CAN PLACE YOU QUICKLY WITHOUT THE USUAL FRUSTRATIONS. ONE APPLICATION SENDS YOUR RESUME TO A NUMBER OF HOSPITALS SEEKING TECHNOLOGISTS.

EMPLOYERS: LET HTTPS TAKE THE WAIT AND BOTHER OUT OF FILLING OPEN POSITIONS. WE CAN SOLVE YOUR STAFFING PROBLEMS. NOTIFY US WHEN THE NEED ARISES. WE WILL SEND YOU A LIST OF AVAILABLE TECHNOLOGISTS AND THEIR RESUMES.

HTTPS THE LOGICAL SOLUTION

HEALTH TECHNOLOGIST PLACEMENT SERVICE
P.O. BOX 6327 • MODESTO, CALIFORNIA 95355
PHONE (209) 527-8682

JUST PUBLISHED!

NUCLEAR MEDICINE REVIEW SYLLABUS

Peter T. Kirchner, M.D., Editor

The 619 page NUCLEAR MEDICINE REVIEW SYLLABUS offers a detailed overview of 12 major topic areas in nuclear medicine. Within each chapter there is a clear, timely review of the subject and a substantial bibliography locating additional information. A 32 page index makes all of the volume's data instantly accessible.

The NUCLEAR MEDICINE REVIEW SYLLABUS has chapters on:

• Radiopharmacology
• Instrumentation
• Radiation Effects and Radiation Protection
• Cardiovascular
• Central Nervous System
• Endocrinology
• Gastroenterology
• Genito-Urinary System
• Hematology-Oncology
• Pulmonary
• Radioassay
• Skeletal System

Copies are available now at $30.00 each (plus $2.50 per copy for postage and handling). All orders must be prepaid or accompanied by a purchase order. Checks must be in U.S. funds only, please. Order from: Book Order Dept., Society of Nuclear Medicine, 475 Park Avenue South, New York, NY 10016.

Mail to: Book Order Dept., Society of Nuclear Medicine, 475 Park Avenue South, New York, NY 10016. Make checks payable to: Society of Nuclear Medicine, Inc. U.S. funds only, please.

______Copies NUCLEAR MEDICINE REVIEW SYLLABUS
@ $30.00 each $______
POSTAGE & HANDLING ($2.50 per copy) $______
FOREIGN ORDERS ADD $7.50 $______
TOTAL ENCCLOSED $______

Send to:
NAME ________________________________
ADDRESS ____________________________________________
__________________________________________ ZIP ______

JNM 5/80
Myocardial scintigraphy with technetium Tc 99m tagged stannous pyrophosphate offers a number of significant benefits:
- An adjunct in determining the presence, location and extent of acute myocardial infarction—including hard-to-define subendocardial infarcts.
- If ECGs are equivocal, particularly useful in detecting recent infarcts when imaging is performed within 24 hours to six days after onset of suggestive symptoms.
- Helps confirm the presence of infarction in cases where ECG's and serum enzymes are not specifically diagnostic.

Use of Phosphotec® (Technetium Tc 99m Pyrophosphate Kit) for cardiac imaging has significant benefits, too:
- Scans of consistently high quality.
- Preparation of solution is a simple, two-step procedure.
- Solution may be used up to 12 hours after reconstitution when stored at 2°-8° C.
- Imaging can be performed 45-60 minutes post-injection.

See next page for brief summary.
A sensitive technique, useful as an adjunct in detecting acute myocardial infarction

Myocardial scintigraphy with technetium Tc 99m tagged stannous pyrophosphate offers a number of significant benefits:

- An adjunct in determining the presence, location and extent of acute myocardial infarction—including hard-to-define subendocardial infarcts.
- If ECG's are equivocal, particularly useful in detecting recent infarcts when imaging is performed within 24 hours to six days after onset of suggestive symptoms.
- Helps confirm the presence of infarction in cases where ECG's and serum enzymes are not specifically diagnostic.

Use of Phosphotec® (Technetium Tc 99m Pyrophosphate Kit) for cardiac imaging has significant benefits, too:

- Scans of consistently high quality.
- Preparation of solution is a simple, two-step procedure.
- Solution may be used up to 12 hours after reconstitution when stored at 2°-8° C.
- Imaging can be performed 45-60 minutes post-injection.

See next page for brief summary.
PHOSPHOTEC® Technetium Tc 99m Pyrophosphate Kit

DESCRIPTION: Phosphotec provides all the nonradioactive components required to prepare sterile, nonpyrogenic technetium Tc 99m pyrophosphate. Each reaction vial contains 40 mg sodium pyrophosphate (equivalent to 23.9 mg anhydrous sodium pyrophosphate) and 1 mg stannous fluoride; the product does not contain a preservative. When sterile, nonpyrogenic sodium pertechnetate Tc 99m solution is added to the reaction vial, technetium Tc 99m pyrophosphate is formed.

INDICATIONS AND USAGE: Phosphotec may be used as a bone imaging agent to delineate areas of altered osteogenesis. It is also a cardiac imaging agent used as an adjunct in the diagnosis of acute myocardial infarction.

CONTRAINdications: None known.

WARNINGS: This product should not be administered to patients who are pregnant or nursing mothers unless the benefit 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 (approx. 10) days following the onset of menses.

It has been reported that false-positive or false-negative brain scans may result when brain scans using sodium pertechnetate Tc 99m solution are performed after a bone scan has been done using an agent containing stannous ions, e.g., a pyrophosphate bone agent. This is thought to be due to the interaction of technetium Tc 99m with stannous ions inside red blood cells. Therefore, in those cases where brain scans are indicated along with imaging of bone or myocardial imaging, the brain scan should be performed first, if feasible. Alternatively, another brain imaging agent, such as technetium Tc 99m pentetate, may be employed. False-positive and false-negative myocardial scans may occur; therefore, the diagnosis of acute myocardial infarction depends on the overall assessment of laboratory and clinical findings.

The contents of the Phosphotec reaction vial are to be used only for preparation of the I.V. solution and are not to be directly administered to the patient. Any sodium pertechnetate Tc 99m solution which contains an oxidizing agent is not suitable for use with Technetium Tc 99m Pyrophosphate Kit. The contents of the kit are not radioactive. However, after sodium pertechnetate Tc 99m is added, adequate shielding of the final preparation must be maintained. Phosphotec (Technetium Tc 99m Pyrophosphate Kit) must be used within 12 hours after reconstitution.

PRECAUTIONS: In the use of any radioactive material, care should be taken to minimize radiation exposure to the patient and occupational workers consistent with proper patient management. Both prior to and following administration of the technetium Tc 99m pyrophosphate, the patient should be encouraged to drink fluids and to void as often as possible thereafter to minimize radiation exposure to the bladder and background interference during imaging if not contraindicated by the patient’s cardiac status. The patient’s cardiac condition should be stable before beginning the cardiac imaging procedure. Interference from chest wall lesions such as breast tumors and healing rib fractures can be minimized by employing three projections (e.g., anterior, lateral, and left anterior oblique).

Adequate reproducible 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; therefore, this preparation 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 the drug since many drugs are excreted in human milk. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: No adverse reactions specifically attributable to the use of this radiopharmaceutical have been reported.

For full prescribing information, see package insert.

HOW SUPPLIED: In a kit containing five reaction vials (5 ml size).

NEW

AUDIOVISUALS IN NUCLEAR CARDIOLOGY

- SI-18 Basic Concepts in Cardiac Anatomy and Physiology by Glen W. Hamilton, M.D.
- SI-19 The Measurement of Ejection Fraction by William Ashburn, M.D.
- SI-20 Intracardiac Shunts and Cardiac Output by William Ashburn, M.D.
- SI-21 Perfusion Studies of the Ischemic Heart by Glen W. Hamilton, M.D.
- SI-22 Detection of Acute Myocardial Infarction by B. Leonard Holman, M.D.
- SI-23 Instrumentation for Nuclear Cardiology by Trevor D. Craddock, Ph.D.

Each audiovisual kit comes complete with expert narration and carefully selected supporting visual materials. Consisting of 35 mm color slides and standard audio cassette, each kit forms a complete self-teaching package. Suitable for individual or group instruction, these units offer active learner participation to reinforce the most important concepts. Each kit has been prepared by an authority in the field, making expert instruction available to you in your home, office or hospital.

SNM Audiovisuals cost $55.00 each for members of the Society of Nuclear Medicine, $75.00 each for nonmembers. There is a 10% discount if all six nuclear cardiology units are ordered at once. A complete list of SNM Audiovisuals is available on request.

MAIL TO: Audiovisual Department, Society of Nuclear Medicine, 475 Park Avenue South, New York, NY 10016.

Please send the following Audiovisual units. (Check units desired.)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$55.00 each for members; $75.00 each for nonmembers.

Total ______ Audiovisual units @ ______ each.

☐ Please send the complete list of SNM Audiovisuals.

☐ I plan to use the Audiovisual units on a machine that automatically advances the slides. Send one side only audio tapes.

TOTAL $_____

DEDUCT 10% IF ORDERING ALL SIX UNITS $_____

FOREIGN ORDERS ADD $7.50 $_____

TOTAL ENCLOSED $_____

SEND TO:

NAME ___________________________

ADDRESS ___________________________

______________________________ ZIP ____________

Check or purchase order must accompany all orders. Make checks payable to the Society of Nuclear Medicine, Inc. U.S. funds only, please.
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)
PHARMATOPES, Inc. is well known for the prompt and reliable delivery of quality radiopharmaceuticals. Now we offer this service to Chicago.

With the aid of computerized prescription processing, record keeping and invoicing, our nuclear pharmacy is very efficient.

With experienced and dedicated personnel, we will provide your department with first rate service.

With the aid of two-way radio dispatched vehicles, our delivery system is well organized.

With experience gained from our other large volume operations, our eight mid-western locations and five years in this climate, we are well prepared for Chicago.

SERVICE IS OUR MOST IMPORTANT PRODUCT

In Chicago Call 666-8200

Pharmatopes, Inc.

NUCLEAR PHARMACY SERVICES

DETROIT • GRAND RAPIDS • TOLEDO • DAYTON • CINCINNATI • COLUMBUS
AKRON • INDIANAPOLIS • CHICAGO • WASHINGTON, DC • BALTIMORE
VIRGINIA BEACH • RICHMOND • SAN JOSE • SACRAMENTO soon to be open: HARTFORD

For further information contact your local Pharmatopes or call (313) 543-8400
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
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 because 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
CintiChem®

Technetium 99m Generators

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

Effectively Shielded Elution Transfer Point

Rapid Elution Vial-Needle Engagement Reduces the Radiation Exposure Time Factor

“Automatic” Elution Vial-Needle Alignment Eliminates the Need for Direct Eye Exposure

Elution Transfer Point Shielded Hood Provides Maximum Radiation Protection During the Elution Process Itself

UNION CARBIDE... INVOLVED IN NUCLEAR MEDICINE FOR OVER 19 YEARS

From Atom to Image

UNION CARBIDE CORPORATION • P.O. BOX 324 • TUXEDO, NEW YORK 10987