SIEMENS

PET...The difference between seeing and understanding

To detect the presence of a tumor is one thing, but an effective treatment course depends on knowledge. To know whether that tumor is likely to be malignant or not is an important element in overall patient management.

Whole-body Positron Emission Tomography (PET) is the bridge between detection and evaluation in cancer imaging. Significant clinical evidence points to a prominent role for PET in the management of cancer patients:

- for cost effective whole body metastatic survey
- for non-invasive differentiation of tumor from radiation necrosis
- for avoidance of biopsies of low grade tumors
- for early change in course of ineffective chemotherapy

Whole-body PET scanning is impacting oncology worldwide. And it is our technology that is making the difference – because more physicians use Siemens PET Systems than any other.

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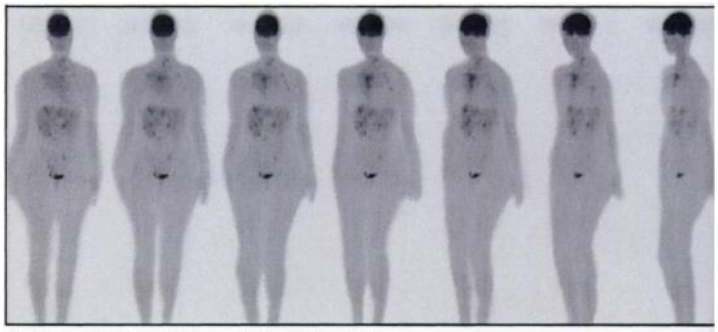
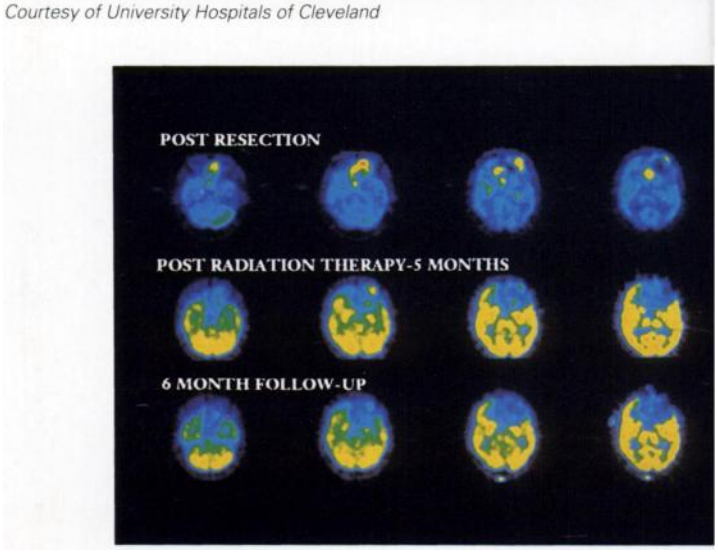
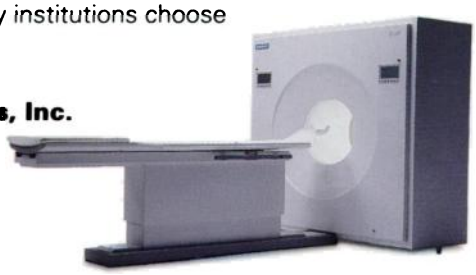


Courtesy of University Hospitals of Cleveland



Courtesy of Creighton University Center for Metabolic Imaging

It's easy to see why so many institutions choose Siemens... the PET Leader.



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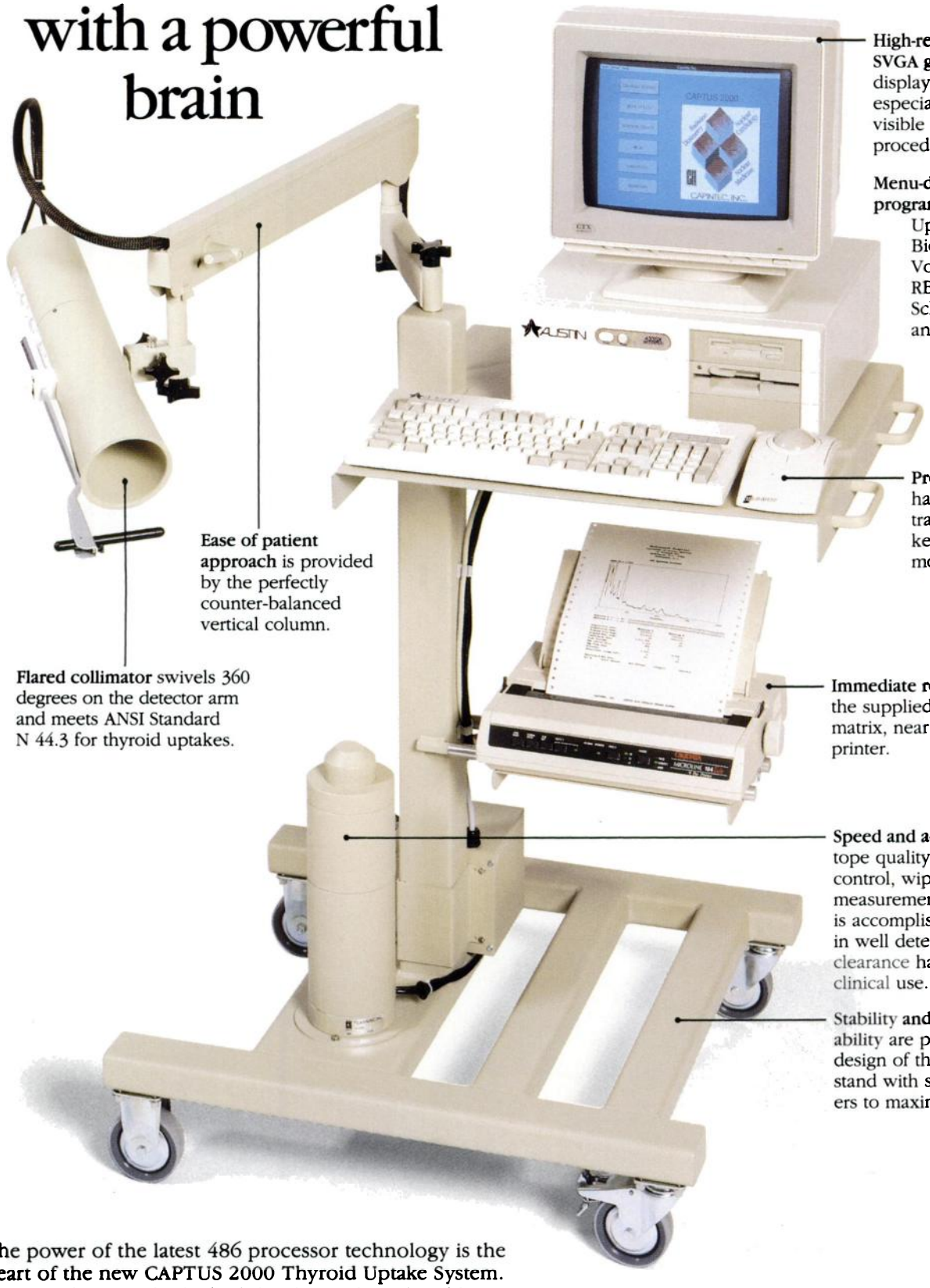
The anatomy of the CAPTUS™ 2000 begins with a powerful brain



High-resolution 800x600 SVGA graphics enhance displays of all programs, especially the full spectrum visible during all counting procedures.

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The power of the latest 486 processor technology is the heart of the new CAPTUS 2000 Thyroid Uptake System. Capintec has matched a high level MCA board and latest windows-based software with easy to use applications programs.

Wipe Testing is performed by the CAPTUS 2000 using an automated peak search identifying any nuclide contamination. A full package of lab test including dual isotope Schillings may be performed with a report printed on the attached printer. Bio Assay was never easier. All test results are saved as archived files for review at another time. For more information, please call (800) 631-3826 today.

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The business of wet chemical processing for laser imaging is going to dry up. Introducing Helios, Polaroid's 8 x 10 Laser System. A genuine breakthrough in diagnostic technology. A system that produces images with unprecedented quality and consistency - without processors, chemicals, or darkroom. With Helios you'll get high-resolution hard copy images fast. Just 90 seconds from scanner to view box. What's more, it requires no cassettes. So, if you're looking for a superb quality, cost-effective, hassle-free alternative to wet processing, the answer is cut and dry. The Helios Laser System. Call 1-800-435-4677 for a sample film.

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BENEDICT CASSEN PRIZE

The Education and Research Foundation of The Society of Nuclear Medicine announces the Benedict Cassen Prize. Donated by the estate of Mary Wylie Cassen, the Prize honors Benedict Cassen, whose invention of the rectilinear radioisotope scanner—the first instrument capable of making an image of a body organ in a patient—was seminal to the development of clinical nuclear medicine.

The Prize is intended to recognize a significant achievement in nuclear medicine science and is to be awarded to the living scientist, or physician-scientist, whose work has led to a major advance in basic or clinical nuclear medicine science. The amount of the prize is $25,000 if a single individual is selected, but may be increased in exceptional circumstances if the Prize is shared by more than one individual. The Prize will be awarded at an annual meeting of the Society of Nuclear Medicine, during which the recipient may present a featured lecture. A panel of distinguished national and international scientists and/or physician-scientists will assist in selecting the individual to be honored.

It is anticipated that the first Cassen Prize will be awarded at the annual meeting of the Society of Nuclear Medicine in 1994.

Further information concerning the Benedict Cassen Prize and nomination materials can be obtained from The Society of Nuclear Medicine, 136 Madison Avenue, New York, NY 10016-6760.

Nominations for the Prize must be postmarked no later than November 1, 1993.

SNM
41ST ANNUAL MEETING
Critical Dates

Item		Due Date
ABSTRACT FORMS		
Scientific Papers	October Issue JNM	1/5/94
Scientific Exhibits	**CONTACT SNM DEPARTMENT OF MEETINGS**	1/5/94
REGISTRATION FORM		5/6/94
HOUSING FORM		5/13/94

DON'T FORGET THE MID-WINTER MEETING IS IN SEATTLE, WASHINGTON

TITLE: Dedicated Instruments and Computer Processing Techniques for Cardiac and Brain Imaging

DATE: February 7-8, 1994

LOCATION: Westin Hotel, Seattle, WA

SPONSOR: The Computer and Instrumentation Council

The rule of thumb in stress perfusion imaging

In myocardial perfusion imaging, the quality of information is directly related to the level of exercise, as measured by the percentage of maximal predicted heart rate achieved by the patient at the time of tracer injection. This is because myocardial oxygen demand is mainly determined by the heart rate. When oxygen demand is increased by exercise, the disparity in coronary blood flow caused by the presence of significant CAD produces perfusion defects, which allow for lesion detection. This provides valuable physiological information for CAD diagnosis.[1,2]

A rule of thumb governs the exercise stress test. Patients are asked to exercise to 85% of their maximal predicted heart rate. This rule has been determined from a review of exercise ECG studies where diagnostic information has been considered inconclusive at heart rates below 85% of the maximal predicted heart rate.[3-5]

When to bend it

However, not all patients will achieve 85% of their maximal predicted heart rate. Some may reach diagnostic endpoints in testing. Others will have physical limitations or may be on beta blockers that prevent them from achieving the optimal level.

To maximize diagnostic certainty and avoid the risk of false-negative test results, suboptimal stress should be avoided.

Pharmacologic stress: The measure of success in imaging after suboptimal exercise

In images taken after patients have failed to reach 85% of their maximal predicted heart rate, defects may go undetected.[3,5] I.V. Persantine® (dipyridamole USP) can help salvage potentially nondiagnostic perfusion studies where patients have achieved suboptimal exercise levels. This form of pharmacologic stress, administered when the patient's heart rate has returned to baseline, allows for reliable results and may result in a higher yield of useful imaging information.[6]

In addition, I.V. Persantine offers a proven safety record,[7]* gradual onset, and a convenient, easy-to-follow protocol. In pharmacologic stress, it's the rule by which all other agents are measured. In perfusion imaging, anything less diminishes diagnostic certainty.

Ask questions about pharmacologic stress with I.V. Persantine. Call the Du Pont Pharma Nuclear Cardiology Infoline at 1-800-343-7851 for further information.

DU PONT PHARMA
Radiopharmaceuticals

*Serious adverse reactions associated with the administration of I.V. Persantine have included fatal and nonfatal myocardial infarction, ventricular fibrillation, symptomatic ventricular tachycardia, transient cerebral ischemia, and bronchospasm. Severe adverse events have occurred infrequently (0.3%) in a study of 3911 patients. Patients with a history of unstable angina may be at a greater risk for severe myocardial ischemia. Patients with a history of asthma may be at a greater risk for bronchospasm.

Persantine® is a registered trademark of Boehringer Ingelheim International GmbH. *I.V. Persantine*® is manufactured and distributed by Du Pont Pharma under license from Boehringer Ingelheim Pharmaceuticals, Inc.

Please see brief summary of prescribing information on reverse for contraindications, warnings, and adverse reactions.

References: 1. Gould KL. Pharmacologic intervention as an alternative to exercise stress. *Semin Nucl Med.* 1987;17:121-130. 2. Verzijlbergen JF, Vermeersch PHMJ, Laarman GJ, Ascoop CAPL. Inadequate exercise leads to suboptimal imaging. Thallium-201 myocardial perfusion imaging after dipyridamole combined with low-level exercise unmasks ischemia in symptomatic patients with non-diagnostic thallium-201 scan who exercise submaximally. *J Nucl Med.* 1991;32:2071-2078. 3. Goldschlager N, Selzer A, Cohn K. Treadmill stress tests as indicators of presence and severity of coronary artery disease. *Ann Intern Med.* 1976;85:277-286. 4. Iskandrian AS, Heo J, Kong B, Lyons E. Effect of exercise level on the ability of thallium-201 tomographic imaging in detecting coronary artery disease: analysis of 461 patients. *J Am Coll Cardiol.* 1989;14:1477-1486. 5. Colby J, Hakki A-H, Iskandrian AS, Mattleman S. Hemodynamic, angiographic and scintigraphic correlates of positive exercise electrocardiograms: emphasis on strongly positive exercise electrocardiograms. *J Am Coll Cardiol.* 1983;2:21-29. 6. Young DZ, Guiney TE, McKusick KA, et al. Unmasking potential myocardial ischemia with dipyridamole thallium imaging in patients with normal submaximal exercise thallium tests. *Am J Noninvas Cardiol.* 1987;1:11-14. 7. Data on file, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, Conn.

I.V.PERSANTINE®

(dipyridamole USP) Injection 5mg/ml

Brief Summary of Prescribing Information

CONTRAINDICATIONS Hypersensitivity to dipyridamole.

WARNINGS Serious adverse reactions associated with the administration of intravenous Persantine® (dipyridamole USP) have included fatal and non-fatal myocardial infarction, ventricular fibrillation, symptomatic ventricular tachycardia, transient cerebral ischemia, and bronchospasm.

In a study of 3911 patients given intravenous Persantine as an adjunct to thallium myocardial perfusion imaging, two types of serious adverse events were reported: 1) four cases of myocardial infarction (0.1%), two fatal (0.05%); and two non-fatal (0.05%); and 2) six cases of severe bronchospasm (0.2%). Although the incidence of these serious adverse events was small (0.3%, 10 of 3911), the potential clinical information to be gained through use of intravenous Persantine thallium imaging must be weighed against the risk to the patient. Patients with a history of unstable angina may be at a greater risk for severe myocardial ischemia. Patients with a history of asthma may be at a greater risk for bronchospasm during IV Persantine use.

When thallium myocardial perfusion imaging is performed with intravenous Persantine, parenteral aminophylline should be readily available for relieving adverse events such as bronchospasm or chest pain. Vital signs should be monitored during, and for 10-15 minutes following, the intravenous infusion of Persantine and an electrocardiographic tracing should be obtained using at least one chest lead. Should severe chest pain or bronchospasm occur, parenteral aminophylline may be administered by slow intravenous injection (50-100 mg over 30-60 seconds) in doses ranging from 50 to 250 mg. In the case of severe hypotension, the patient should be placed in a supine position with the head tilted down if necessary, before administration of parenteral aminophylline. If 250 mg of aminophylline does not relieve chest pain symptoms within a few minutes, sublingual nitroglycerin may be administered. If chest pain continues despite use of aminophylline and nitroglycerin, the possibility of myocardial infarction should be considered. If the clinical condition of a patient with an adverse event permits a one minute delay in the administration of parenteral aminophylline, thallium-201 may be injected and allowed to circulate for one minute before the injection of aminophylline. This will allow initial thallium perfusion imaging to be performed before reversal of the pharmacologic effects of Persantine on the coronary circulation.

PRECAUTIONS See WARNINGS.

Drug Interactions Oral maintenance theophylline may abolish the coronary vasodilatation induced by intravenous Persantine® (dipyridamole USP) administration. This could lead to a false negative thallium imaging result.

Carcinogenesis, Mutagenesis, Impairment of Fertility In studies in which dipyridamole was administered in the feed at doses of up to 75 mg/kg/day (9.4 times* the maximum recommended daily human oral dose) in mice (up to 128 weeks in males and up to 142 weeks in females) and rats (up to 111 weeks in males and females), there was no evidence of drug related carcinogenesis. Mutagenicity tests of dipyridamole with bacterial and mammalian cell systems were negative. There was no evidence of impaired fertility when dipyridamole was administered to male and female rats at oral doses up to 500 mg/kg/day (63 times* the maximum recommended daily human oral dose). A significant reduction in number of corpora lutea with consequent reduction in implantations and live fetuses was, however, observed at 1250 mg/kg/day.

*Calculation based on assumed body weight of 50 kg.

Pregnancy Category B Reproduction studies performed in mice and rats at daily oral doses of up to 125 mg/kg (15.6 times* the maximum recommended daily human oral dose) and in rabbits at daily oral doses of up to 20 mg/kg (2.5 times* the maximum recommended daily human oral dose) have revealed no evidence of impaired embryonic development due to dipyridamole. There are, however, no adequate and well controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human responses, this drug should be used during pregnancy only if clearly needed.

*Calculation based on assumed body weight of 50 kg.

Nursing Mothers Dipyridamole is excreted in human milk.

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

ADVERSE REACTIONS Adverse reaction information concerning intravenous Persantine® (dipyridamole USP) is derived from a study of 3911 patients in which intravenous Persantine was used as an adjunct to thallium myocardial perfusion imaging and from spontaneous reports of adverse reactions and the published literature.

Serious adverse events (fatal and non-fatal myocardial infarction, severe ventricular arrhythmias, and serious CNS abnormalities) are described previously (see WARNINGS).

In the study of 3911 patients, the most frequent adverse reactions were: chest pain/angina pectoris (19.7%), electrocardiographic changes (most commonly ST-T changes) (15.9%), headache (12.2%), and dizziness (11.8%).

Adverse reactions occurring in greater than 1% of the patients in the study are shown in the following table:

	Incidence (%) of Drug-Related Adverse Events
Chest Pain/Angina Pectoris	19.7
Headache	12.2
Dizziness	11.8
Electrocardiographic Abnormalities/ST-T changes	7.5
Electrocardiographic Abnormalities/Extrasystoles	5.2
Hypotension	4.6
Nausea	4.6
Flushing	3.4
Electrocardiographic Abnormalities/Tachycardia	3.2
Dyspnea	2.6
Pain Unspecified	2.6
Blood Pressure Lability	1.6
Hypertension	1.5
Paresthesia	1.3
Fatigue	1.2

Less common adverse reactions occurring in 1% or less of the patients within the study included:

Cardiovascular System: Electrocardiographic abnormalities unspecified (0.8%), arrhythmia unspecified (0.6%), palpitation (0.3%), ventricular tachycardia (0.2% see WARNINGS), bradycardia (0.2%), myocardial infarction (0.1% see WARNINGS), AV block (0.1%), syncope (0.1%), orthostatic hypotension (0.1%), atrial fibrillation (0.1%), supraventricular tachycardia (0.1%), ventricular arrhythmia unspecified (0.03% see WARNINGS), heart block unspecified (0.03%), cardiomyopathy (0.03%), edema (0.03%).

Central and Peripheral Nervous System: Hypothesia (0.5%), hypertonia (0.3%), nervousness/anxiety (0.2%), tremor (0.1%), abnormal coordination (0.03%), somnolence (0.03%), dysphonia (0.03%), migraine (0.03%), vertigo (0.03%).

Gastrointestinal System: Dyspepsia (1.0%), dry mouth (0.8%), abdominal pain (0.7%), flatulence (0.6%), vomiting (0.4%), eructation (0.1%), dysphagia (0.03%), tenesmus (0.03%), appetite increased (0.03%).

Respiratory System: Pharyngitis (0.3%), bronchospasm (0.2% see WARNINGS), hyperventilation (0.1%), rhinitis (0.1%), coughing (0.03%), pleural pain (0.03%).

Other: Myalgia (0.9%), back pain (0.6%), injection site reaction unspecified (0.4%), diaphoresis (0.4%), asthenia (0.3%), malaise (0.3%), arthralgia (0.3%), injection site pain (0.1%), rigor (0.1%), earache (0.1%), tinnitus (0.1%), vision abnormalities unspecified (0.1%), dysgeusia (0.1%), thirst (0.03%), depersonalization (0.03%), eye pain (0.03%), renal pain (0.03%), perineal pain (0.03%), breast pain (0.03%), intermittent claudication (0.03%), leg cramping (0.03%).

OVERDOSAGE No cases of overdosage in humans have been reported. It is unlikely that overdosage will occur because of the nature of use (i.e., single intravenous administration in controlled settings). See WARNINGS.

Caution Federal law prohibits dispensing without prescription.

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Radiopharmaceuticals

Boehringer Ingelheim

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CALL FOR APPLICANTS

Editor, *Journal of Nuclear Medicine Technology*

The Publications Committee of the Technologist Section, Society of Nuclear Medicine, is accepting applications for Editor of the *Journal of Nuclear Medicine Technology.*

Technologist Section members are urged to take this opportunity to influence the Journal's direction. The editorship of the Journal is a three-year appointment and involves commitment to a very demanding, but immensely rewarding, position. The current JNMT Editor is now completing a second three-year term; Technologist Section Bylaws limit the JNMT Editor to no more than two three-year terms.

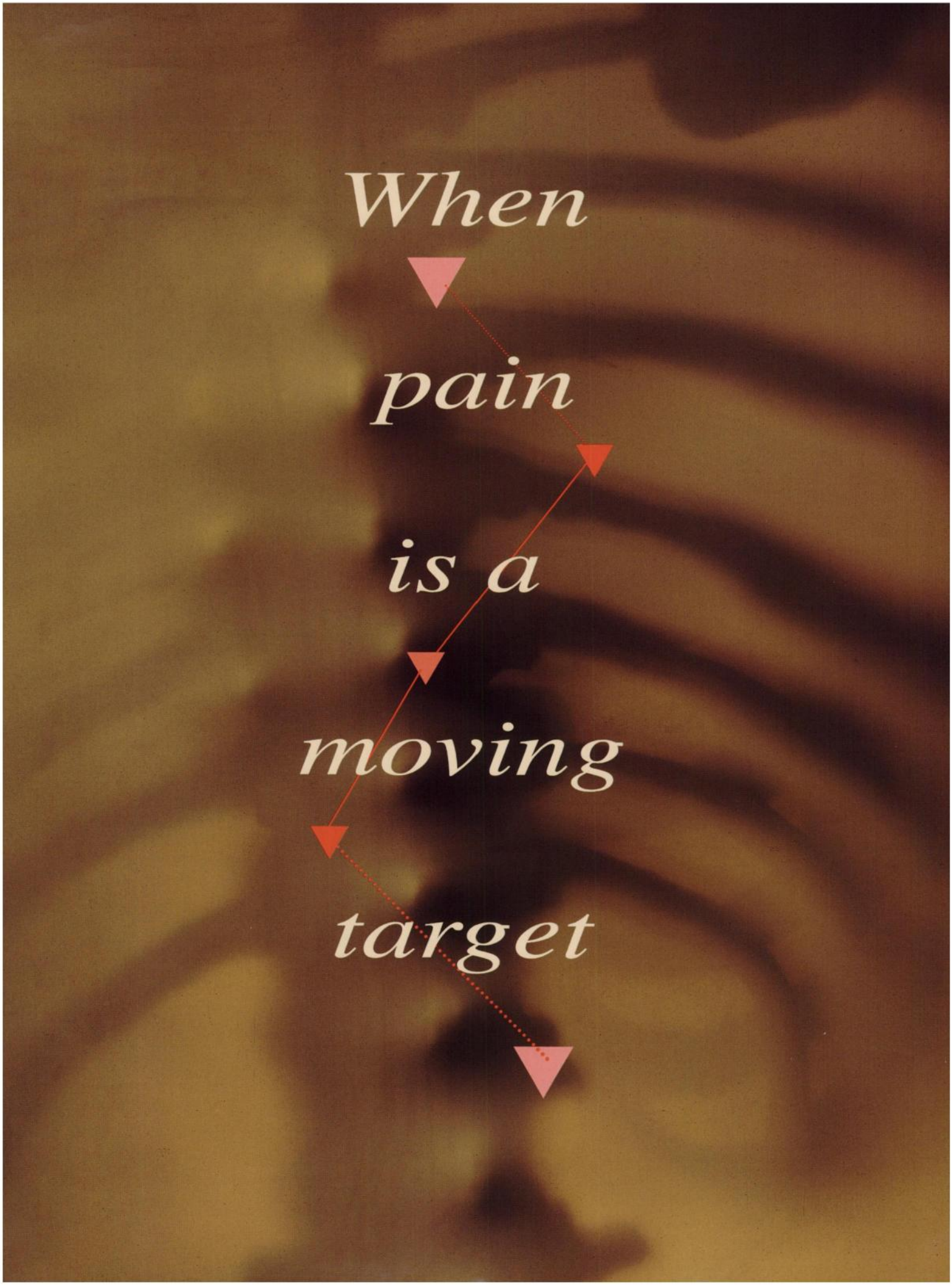
Interested individuals should send an application to Jim Wirrell, Chair, TS Publications Committee. The application should consist of the following:

1. A current curriculum vitae, with emphasis on publishing experience and Technologist Section activities.
2. A description of access to office facilities and secretarial assistance.
3. A letter of support from candidate's immediate supervisor, which includes candidate's availability during working hours and access to office support, supplies, equipment, and secretarial assistance.
4. An overview of candidate's vision for the JNMT; approach to fulfilling the obligations and responsibilities of the Editor; recommendations for significant changes; and operational strategy and procedure. Please limit these comments to two pages.

Applications must be submitted by December 31, 1993. The selection of the new Editor will be made in June 1994, and the term will begin on January 1, 1995.

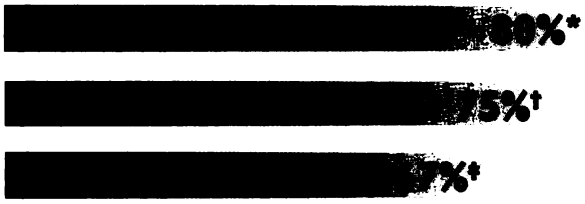
Send application to:

James J. Wirrell, CNMT
Allied Health Department
Methodist Hospital
1701 North Senate Blvd.
Indianapolis, IN 46202


When
pain
is a
moving
target

PALLIATION OF PAIN DEMONSTRATED IN THE MAJORITY OF PATIENTS AT THE RECOMMENDED DOSE.

Metastron overall response rate (% of patients).[1,4,7]



Pain relief evaluations included diaries, records of medication taken, sleep patterns, bone scans, and Karnofsky index.

*Open-label study of 137 patients who received 111-148 MBq, 3.0-4.0 mCi of Metastron.[4]

†Open-label study of 83 patients who received 150 MBq, ~4 mCi or more of Metastron.[1]

‡Double-blind, crossover study of 26 patients who received 150 MBq, ~4 mCi of Metastron or placebo.[7]

ADJUNCTIVELY DELAYS THE MEDIAN TIME TO PROGRESSION OF PAIN BY 7 MONTHS OVER RADIOTHERAPY ALONE.

Median time to requirement for additional radiotherapy at new pain site.[§3]

§From a multicenter, double-blind study of 126 patients who received a single injection of either Metastron 400 MBq, 10.8 mCi or placebo with fractionated doses of local field radiotherapy (20-30 Gy).[3]

HIGHLY EFFECTIVE NON-NARCOTIC THERAPY.

▼ Metastron may reduce or eliminate the need for dose escalation of narcotic analgesics.[2-4]

GENERALLY WELL TOLERATED.

▼ A depression of white blood cell (20%) and platelet (30%) levels may occur in patients treated with Metastron—clinically significant toxicity is rare.[2]

AN IMPROVED QUALITY OF LIFE FOR PATIENTS.

▼ Metastron may improve patient quality of life, as measured by assessments of mood, mobility, appetite, sleep pattern, and analgesic consumption.[1-5,7]

▼ Proven in 7 years of clinical experience in more than 6000 patients worldwide.[2]

Please see following page for full prescribing information.

Introducing

METASTRON®

(STRONTIUM-89 CHLORIDE INJECTION)

A new way to manage metastatic bone pain.

Introducing

METASTRON®

(STRONTIUM-89 CHLORIDE INJECTION)

A new way to manage metastatic bone pain.

Consult your radiation safety officer for product availability or call Amersham Healthcare/ Medi-Physics Technical Services at 1-800-554-0157.

Metastron® (Strontium-89 Chloride Injection)

Description: Metastron is a sterile, non-pyrogenic, aqueous solution of Strontium-89 Chloride for intravenous administration. The solution contains no preservative.

Each milliliter contains:		
	Strontium Chloride	10.9 - 22.6 mg
	Water for Injection	q.s. to 1 mL

The radioactive concentration is 37 MBq/mL, 1 mCi/mL and the specific activity is 2.96 - 6.17 MBq/mg, 80-167 µCi/mg at calibration. The pH of the solution is 4 - 7.5.

Physical Characteristics: Strontium-89 decays by beta emission with a physical half-life of 50.5 days. The maximum beta energy is 1.463 MeV (100%). The maximum range of ß- from Strontium-89 in tissue is approximately 8 mm.

Radioactive decay factors to be applied to the stated value for radioactive concentration at calibration, when calculating injection volumes at the time of administration, are given in Table 1.

Table 1: Decay of Strontium-89

Day*	Factor	Day*	Factor	Day*	Factor	Day*	Factor
-24	1.39	-12	1.18	+6	0.92	+18	0.78
-22	1.35	-10	1.15	+8	0.90	+20	0.76
-20	1.32	-8	1.12	+10	0.87	+22	0.74
-18	1.28	-6	1.09	+12	0.85	+24	0.72
-16	1.25	-4	1.06	+14	0.83	+26	0.70
-14	1.21	-2	1.03	+16	0.80	+28	0.68
		0 = calibration	1.00				

*Days before (-) or after (+) the calibration date stated on the vial.

Clinical Pharmacology: Following intravenous injection, soluble strontium compounds behave like their calcium analogs, clearing rapidly from the blood and selectively localizing in bone mineral. Uptake of strontium by bone occurs preferentially in sites of active osteogenesis; thus primary bone tumors and areas of metastatic involvement (blastic lesions) can accumulate significantly greater concentrations of strontium than surrounding normal bone.

Strontium-89 Chloride is retained in metastatic bone lesions much longer than in normal bone, where turnover is about 14 days. In patients with extensive skeletal metastases, well over half of the injected dose is retained in the bones.

Excretion pathways are two-thirds urinary and one-third fecal in patients with bone metastases. Urinary excretion is higher in people without bone lesions. Urinary excretion is greatest in the first two days following injection.

Strontium-89 is a pure beta emitter and Strontium-89 Chloride selectively irradiates sites of primary and metastatic bone involvement with minimal irradiation of soft tissues distant from the bone lesions. (The maximum range in tissue is 8 mm; maximum energy is 1.463 MeV.) Mean absorbed radiation doses are listed under the **Radiation Dosimetry** section.

Clinical trials have examined relief of pain in cancer patients who have received therapy for bone metastases (external radiation to indexed sites) but in whom persistent pain recurred. In a multi-center Canadian placebo-controlled trial of 126 patients, pain relief occurred in more patients treated with a single injection of Metastron than in patients treated with an injection of placebo. Results are given in the following tables.

Table 2 compares the percentage and number of patients treated with Metastron or placebo who had reduced pain and no increase in analgesic or radiotherapy re-treatment.

Table 2: Comparison of the effects of Strontium-89 and placebo, as adjunct to radiotherapy, on treatment outcome over time.

	Months Post-Treatment					
	1	2	3	4	5	6
Metastron	71.4% (n=42)	78.9% (n=38)	60.6% (n=33)	59.3% (n=27)	36.4% (n=22)	63.6% (n=22)
Placebo	61.4% (n=44)	57.1% (n=35)	55.9% (n=34)	25.0% (n=24)	31.8% (n=22)	35.0% (n=20)

At each visit, treatment success, defined as a reduction in a patient's pain score without any increase in analgesic intake and without any supplementary radiotherapy at the index site, was more frequent among patients assigned to Metastron than to placebo.

Table 3 compares the number and percentage of patients treated with Metastron or placebo as an adjunct to radiotherapy who were pain free without analgesic at the intervals shown.

Table 3: Comparison of the effects of Strontium-89 and placebo, as adjunct to radiotherapy, on reduction of pain score and analgesic score to zero.

	Months Post-Treatment						
	1	2	3	4	5	6	9
Metastron	6 14.3% (n=42)	5 13.2% (n=38)	5 15.2% (n=33)	3 11.1% (n=27)	4 18.2% (n=22)	4 18.2% (n=22)	2 18.2% (n=11)
Placebo	3 6.8% (n=44)	3 8.6% (n=35)	2 5.9% (n=34)	0 (n=24)	1 4.5% (n=22)	1 5% (n=20)	0 (n=17)

The number of patients classified at each visit as treatment successes who were pain free at the index site *and* required no analgesics was consistently higher in the Metastron group.

New pain sites were less frequent in patients treated with Metastron.

In another clinical trial, pain relief was greater in a group of patients treated with Metastron compared with a group treated with non-radioactive strontium-88.

Indications and Usage: Metastron (Strontium-89 Chloride Injection) is indicated for the relief of bone pain in patients with painful skeletal metastases.

The presence of bone metastases should be confirmed prior to therapy.

Contraindications: None known.

Warnings: Use of Metastron in patients with evidence of seriously compromised bone marrow from previous therapy or disease infiltration is not recommended unless the potential benefit of the treatment outweighs its risks. Bone marrow toxicity is to be expected following the administration of Metastron, particularly white blood cells and platelets. The extent of toxicity is variable. It is recommended that the patient's peripheral blood cell counts be monitored at least once every other week. Typically, platelets will be depressed by about 30% compared to pre-administration levels. The nadir of platelet depression in most patients is found between 12 and 16 weeks following administration of Metastron. White blood cells are usually depressed to a varying extent compared to pre-administration levels. Thereafter, recovery occurs slowly, typically reaching pre-administration levels six months after treatment unless the patient's disease or additional therapy intervenes.

In considering repeat administration of Metastron, the patient's hematologic response to the initial dose, current platelet level and other evidence of marrow depletion should be carefully evaluated.

Verification of dose and patient identification is necessary prior to administration because Metastron delivers a relatively high dose of radioactivity.

Metastron may cause fetal harm when administered to a pregnant woman. There are no adequate and well-controlled studies in pregnant women. If this drug is used during pregnancy, or if the patient becomes pregnant while receiving this drug, the patient should be apprised of the potential hazard to the fetus. Women of childbearing potential should be advised to avoid becoming pregnant.

Precautions: Metastron is not indicated for use in patients with cancer not involving bone. Metastron should be used with caution in patients with platelet counts below 60,000 and white cell counts below 2,400.

Radiopharmaceuticals should only be used 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.

Metastron, like other radioactive drugs, must be handled with care and appropriate safety measures taken to minimize radiation to clinical personnel.

In view of the delayed onset of pain relief, typically 7 to 20 days post injection, administration of Metastron to patients with very short life expectancy is not recommended.

A calcium-like flushing sensation has been observed in patients following a rapid (less than 30-second injection) administration.

Special precautions, such as urinary catheterization, should be taken following administration to patients who are incontinent to minimize the risk of radioactive contamination of clothing, bed linen and the patient's environment.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Data from a repetitive dose animal study suggests that Strontium-89 Chloride is a potential carcinogen. Thirty-three of 40 rats injected with Strontium-89 Chloride in ten consecutive monthly doses of either 250 or 350 µCi/kg developed malignant bone tumors after a latency period of approximately 9 months. No neoplasia was observed in the control animals. Treatment with Strontium-89 Chloride should be restricted to patients with well documented metastatic bone disease.

Adequate studies with Strontium-89 Chloride have not been performed to evaluate mutagenic potential or effects on fertility.

Pregnancy: Teratogenic effects.

Pregnancy Category D. See **Warnings** section.

Nursing Mothers: Because Strontium acts as a calcium analog, secretion of Strontium-89 Chloride into human milk is likely. It is recommended that nursing be discontinued by mothers about to receive intravenous Strontium-89 Chloride. It is not known whether this drug is excreted in human milk.

Pediatric Use: Safety and effectiveness in children below the age of 18 years have not been established.

Adverse Reactions: A single case of fatal septicemia following leukopenia was reported during clinical trials. Most severe reactions of marrow toxicity can be managed by conventional means.

A small number of patients have reported a transient increase in bone pain at 36 to 72 hours after injection. This is usually mild and self-limiting, and controllable with analgesics. A single patient reported chills and fever 12 hours after injection without long-term sequelae.

Dosage and Administration: The recommended dose of Metastron is 148 MBq, 4 mCi, administered by slow intravenous injection (1-2 minutes). Alternatively, a dose of 1.5 - 2.2 MBq/kg, 40-60 µCi/kg body weight may be used.

Repeated administrations of Metastron should be based on an individual patient's response to therapy, current symptoms, and hematologic status, and are generally not recommended at intervals of less than 90 days.

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

Radiation Dosimetry: The estimated radiation dose that would be delivered over time by the intravenous injection of 37 MBq, 1 mCi of Strontium-89 to a normal healthy adult is given in Table 4. Data are taken from the ICRP publication "Radiation Dose to Patients from Radiopharmaceuticals"-ICRP #53, Vol. 18 No. 1-4, Page 171, Pergamon Press, 1988.

Table 4: Strontium-89 Dosimetry

Organ	mGy/MBq	rad/mCi	Organ	mGy/MBq	rad/mCi
Bone Surface	17.0	63.0	Testes	0.8	2.9
Red Bone Marrow	11.0	40.7	Ovaries	0.8	2.9
Lower Bowel Wall	4.7	17.4	Uterine Wall	0.8	2.9
Bladder Wall	1.3	4.8	Kidneys	0.8	2.9

When blastic osseous metastases are present, significantly enhanced localization of the radiopharmaceutical will occur with correspondingly higher doses to the metastases compared with normal bones and other organs.

The radiation dose hazard in handling Strontium-89 Chloride injection during dose dispensing and administration is similar to that from phosphorus-32. The beta emission has a range in water of about 8 mm (max.) and in glass of about 3 mm, but the bremsstrahlung radiation may augment the contact dose.

Measured values of the dose on the surface of the unshielded vial are about 65 mR/minute/mCi.

It is recommended that the vial be kept inside its transportation shield whenever possible.

How Supplied: Metastron is supplied in a 10 mL vial containing 148 MBq, 4 mCi. The vial is shipped in a transportation shield with approximately 3 mm lead wall thickness, package insert, and two therapeutic agent warning labels.

The vial and its contents should be stored inside its transportation container at room temperature (15-25° C, 59-77° F).

The calibration date (for radioactivity content) and expiration date are quoted on the vial label. The expiration date will be 28 days after calibration. Stability studies have shown no change in any of the product characteristics monitored during routine product quality control over the period from manufacture to expiration.

This radiopharmaceutical is licensed by the Illinois Department of Nuclear Safety for distribution to persons licensed pursuant to 32 Illinois Adm. Code 330.260 (a) and Part 335 Subpart F.335.5010 or under equivalent licenses of the USNRC or an Agreement State.

THIS PRODUCT INFORMATION ISSUED JUNE, 1993.

Product Code: SMS.2PA

Manufactured by: **Amersham International plc**, Amersham, England

Medi-Physics, Inc.
2636 S. Clearbrook Drive
Arlington Heights, Illinois 60005

References:

1. Laing AH, Ackery DM, Bayly RJ, et al. Strontium-89 chloride for pain palliation in prostatic skeletal malignancy. *Br J Radiol.* 1991;64:816-822. 2. Data on file, Amersham International plc, Amersham, England. 3. Porter AT, McEwan AJB, Powe JE, et al. Results of a randomized phase-III trial to evaluate the efficacy of strontium-89 adjuvant to local field external beam irradiation in the management of endocrine resistant metastatic prostate cancer. *Int J Radiat Oncol Biol Phys.* 1993;25:805-813. 4. Robinson RG, Blake GM, Preston DF, et al. Strontium-89: treatment results and kinetics in patients with painful metastatic prostate and breast cancer in bone. *RadioGraphics.* 1989;9(2):271-281. 5. Blake GM, Zivanovic MA, McEwan AJ, et al. ^{89}Sr radionuclide therapy: dosimetry and haematological toxicity in two patients with metastasising prostatic carcinoma. *Eur J Nucl Med.* 1987;13:41-46. 6. Blake GM, Zivanovic MA, McEwan AJ, et al. Sr-89 therapy: strontium kinetics in disseminated carcinoma of the prostate. *Eur J Nucl Med.* 1986;12:447-454. 7. Lewington VJ, McEwan AJ, Ackery DM, et al. A prospective, randomised double-blind crossover study to examine the efficacy of strontium-89 in pain palliation in patients with advanced prostate cancer metastatic to bone. *Eur J Cancer.* 1991;27:954-958.

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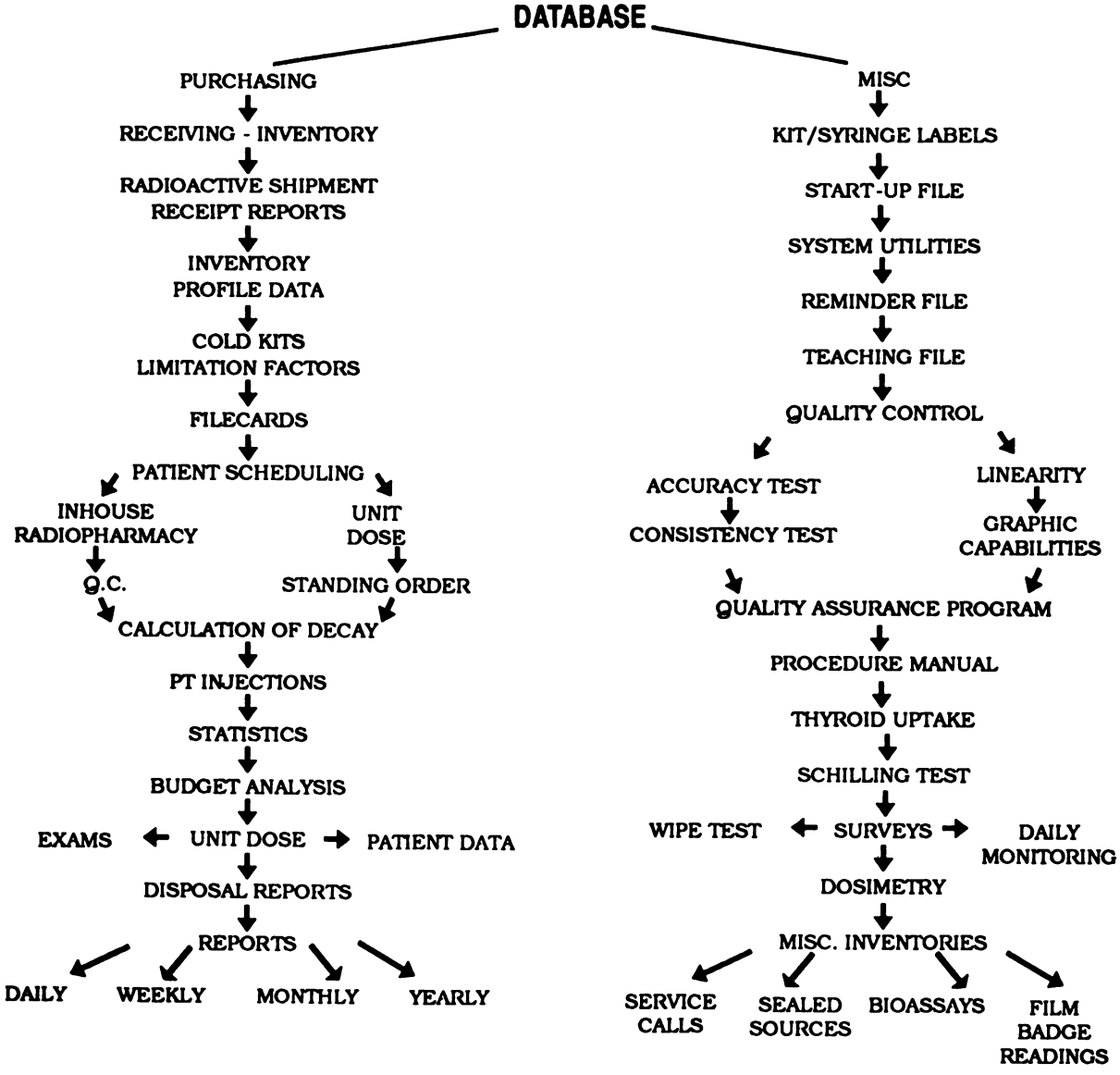

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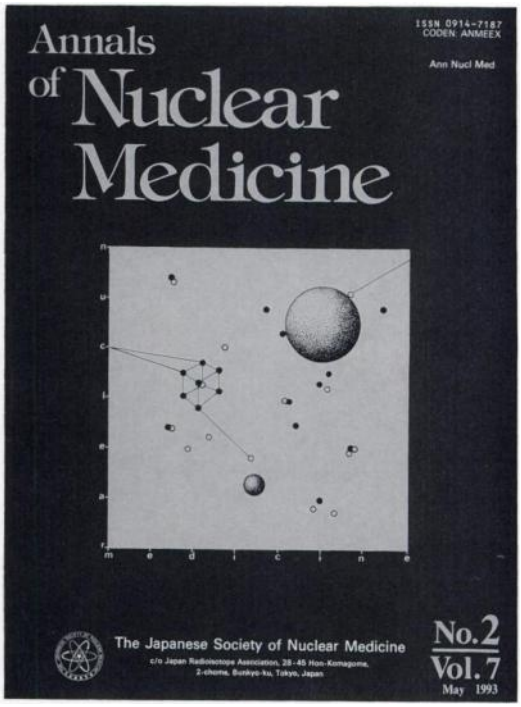

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The 1994 Scientific and Teaching Sessions Committee solicits the submission of abstracts from members and nonmembers of The Society of Nuclear Medicine for the 41st Annual Meeting in Orlando, Florida. Abstracts accepted for the program will be published in the June issue of the *Journal of Nuclear Medicine Technology.* Original contributions on a variety of topics related to nuclear medicine will be considered, including:

CALL FOR ABSTRACTS FOR SCIENTIFIC PAPERS AND SCIENTIFIC EXHIBITS

The Society of Nuclear Medicine
41st Annual Meeting
June 5 - June 8, 1994
Orlando, Florida

- Instrumentation and Data Analysis
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- Radiopharmaceutical Chemistry
- Dosimetry/Radiobiology
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  - Hematology/Infectious Disease

Authors seeking publication for the full text of their papers are strongly encouraged to submit their work for immediate review to the JNMT:

TECHNOLOGIST SECTION AWARDS

The Awards Committee is responsible for reviewing and judging presented scientific papers, posters, and exhibits at the national SNM Meeting. We encourage all technologists and students to participate and gain national recognition for their investigative work.

The following awards will be given to technologists at the 1994 Annual Meeting in Orlando, Florida:

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1st: $500 2nd: $300 3rd: $200

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1T

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Department of Radiology
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This program is sponsored by the Medical College of Wisconsin.

TUITION:

The tuition fee of $650 includes the course syllabus, handouts, breaks, breakfasts, lunches, and other amenities involved in making this a pleasant learning experience. Maximum enrollments have been established. Cancellations prior to the course will be refunded, less a $30 administrative fee.

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The Medical College of Wisconsin is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians.

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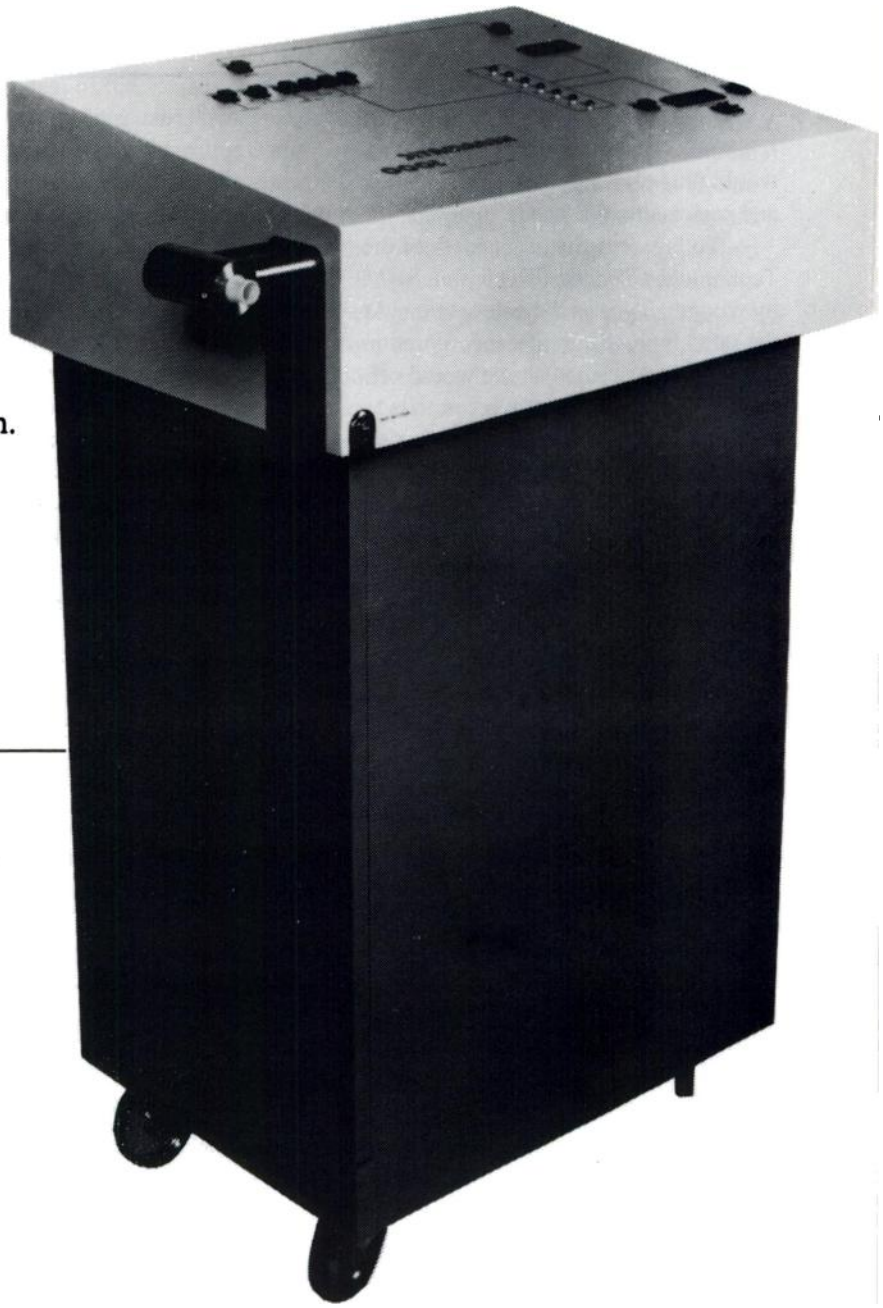

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Bioprocess Mixing System

The Nalge Company has introduced a complete bioprocess mixing system that has been specifically designed for use with the 12-liter Nalgene™ culture vessel with ports. The new system is designed to deliver maximum efficiency and mixing. The system includes an autoclavable Nalgene culture vessel with ports molded of lightweight, clear, break-resistant polycarbonate; a 1/30-HP Nalgene BioTech mixer overhead drive with LED readouts, variable speed controls, programmable timer and audible overload alarm; and a lower assembly featuring a 3/8-in, type 316 stainless steel shaft and 4-in, glass-filled polypropylene axial-flow impeller. **Nalge Company, P.O. Box 20365, Rochester, NY 14602. (716) 264-3985. Fax: (716) 586-8431.**

Videotape Training Program

Nuclear Associates has released a new videotape training program entitled "Hospital Radiation Protection Practices." This program offers an overview of radiation protection in a hospital setting for all hospital personnel. It provides in-depth descriptions of current radiation protection procedures required by government regulations for the medical use of radioactive materials. The opening segment covers the history of radiation use and protection, biological effects and general principles of radiation protection. This information is ideal for a hospital's indoctrination program for nonradiology employees and nurses who require general knowledge about radiation protection. The second segment addresses what is required of a hospital radiation safety program in order to comply with government agencies in the areas of diagnostic radiology, teletherapy, brachytherapy, diagnostic and therapeutic nuclear medicine, among others. **Nuclear Associates, 100 Voice Rd., P.O. Box 349, Carle Place, NY 11514-0349. (516) 741-6360. Fax: (516) 741-5414.**

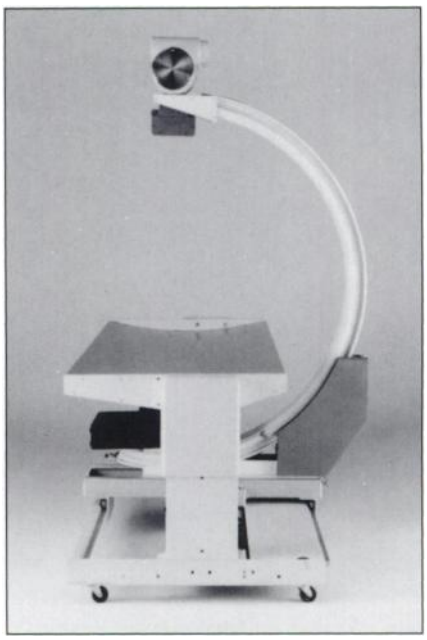
New Accessories for X-Ray Test Devices

The Model 4000+ and Model 4000M+ x-ray test devices have been augmented by the introduction of several accessories by Victoreen. The model 6000-530 Image Intensifier Ionization Chamber is designed to measure exposure rates at the input phosphor of image intensifiers. Along with the remainder of Victoreen's diagnostic ion chambers, it makes good use of the Model 6000-531 preamplifier. This small device matches the sensitivity of up to four ion chambers with the input sensitivity of the Model 4000 series device, giving direct exposure and exposure rate readouts without the need for correction factors. Another recent addition to the product line is the software package, QA-Quick™. Designed to run on a Hewlett-Packard Model 48SX calculator, interfaced to the Model 4000M+ or Model 4000+ via a standard RS-232 interface, it enables the user to operate the instrument remotely in addition to performing various QA calculations. **Victoreen, Inc., 6000 Cochran Rd., Cleveland, OH 44139-3395. (216) 248-9300. Fax: (216) 248-9301.**

Individualized Technical Support Programs

Agfa has introduced Agfatek, a series of maintenance support programs individualized to the specific requirements of its medical and nondestructive testing imaging equipment customers. Ranging from product documentation and telephone support to comprehensive service agreement plans, Agfatek programs are designed to keep Agfa products and systems running with maximum efficiency at minimum cost. A team of technical imaging systems field engineers, backed up by phone support specialists available 24 hr a day, 365 days a yr on a toll-free number is the key to Agfatek programs. If a problem cannot be solved over the telephone, Agfa will dispatch a field engineer who will arrive on-site in a van stocked with a selection of parts and equipment designed to troubleshoot and repair most problems on the first visit. Customer training courses are also available. **Agfa Division, Miles Inc., 100 Challenger Rd., Ridgefield Park, NJ 07660. (201) 641-9566. Fax: (201) 440-1512.**

Imaging Densitometer



Lunar Corporation has announced a breakthrough in bone densitometry with the release of its Expert Bone Densitometer. Expert's high-resolution images enable accurate morphometry of the lateral spine without the need for separate thoracic and lumbar radiographs. The radiation dose is 10 to 20 times lower than radiographs and the images are much improved due to limited scatter radiation, no magnification or distortion and limited density inhomogeneities. Expert performs total body scans in 2 min compared to conventional spine/femur imaging which takes 30 sec. Specific lateral images of the lumbar spine can be obtained in 1 min, while an image of the entire lateral spine from L5 to T4 takes only 2 min. Expert's motorized C-arm can be easily rotated for imaging at different angles, including the lateral spine in the supine position. Its radiation source uses a rotating anode tube and K-edge filter. This produces relatively monoenergetic x-rays that minimize beam hardening problems. **Lunar Corporation, 313 West Beltline Hwy., Madison, WI 53713. (608) 374-2663. Fax: (608) 274-5374.**

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Positions Available

Faculty

The Medical Research Council of Canada Group in the Radiation Sciences, Université de Sherbrooke, invites applications for a tenure-track position in the field of medical imaging. The appointment will be at the INSTRUCTOR, ASSISTANT or ASSOCIATE PROFESSOR level within the Department of Nuclear Medicine and Radiobiology and will be associated with an appointment within the new PET/MRI Imaging Unit of the CHUS Clinical Research Centre. This clinical/research unit is scheduled to start operation early in 1995 and will include a cyclotron, whole-body and animal PET scanners and an MRI/MRS system. Applicants should have research interests relevant to functional imaging and have strong expertise in either PET imaging, medical image processing/registration or kinetic modeling. Send curriculum vitae, description of research interests and arrange for three letters of recommendation to be sent to: Johan van Lier, Ph.D., Chairman, Department of Nuclear Medicine and Radiobiology, Faculty of Medicine, Université de Sherbrooke, Sherbrooke, Québec, Canada J1H5N4.

Pharmacist

STAFF NUCLEAR PHARMACIST. The Univ. of Oklahoma Health Sciences Center, College of Pharmacy has an immediate opening for a Staff Nuclear Pharmacist. Candidates must be eligible for both licensure in the State of Oklahoma and by the NRC. Interested candidates should send a resumé and names of three references to: Stanley L. Mills, PhD, Director, Nuclear Pharmacy, College of Pharmacy, Univ. of Okla. Health Sciences Center, P.O. Box 26901, Okla City, OK 73104. OUHSC is an EOE.

Physician

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Post Doctoral Position

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STAFF POSITION

Immediate opening for full-time, temporary (not to exceed one year). ABIM and ABNM eligible/certified preferred. Relocation expenses are authorized.

Contact: Jerry Glowniak, MD, Acting Chief, Nuclear Medicine, VA Medical Center, PO Box 1034, Portland, OR 97207. Phone (503) 273-5846. EOE.

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The School of Health Sciences, Purdue University, is seeking applications for a new, full-time, tenure track, academic year, faculty position at the assistant professor level. Applicants with outstanding credentials might be considered for appointments at a higher faculty rank. Applicants will be considered in all areas of health physics but preference will be given to those applicants having expertise in radiobiology, microdosimetry, medical health physics, or medical physics. The position will include academic and administrative responsibilities for the medical physics program currently being carried out jointly with the Indiana University Medical Center. The successful applicant, who must have a Ph.D. or equivalent, will be expected to maintain an externally funded research program and to supervise graduate students. The person should also be capable of supporting the basic teaching program in undergraduate health physics.

Applications should be sent to: **Dr. Robert Landolt, Chair, Search Committee, Purdue University, School of Health Sciences, 1338 Civil Engineering Building, West Lafayette, Indiana 47907-1338**

Applicants should submit a letter of introduction which includes a statement of research interests, a curriculum vitae including a list of publications and any previous funding, and the names, addresses, and telephone numbers of three references. Applications will be received immediately and review will begin November 1, 1993, and continue until the position is filled, but no later than July 1, 1994

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Clinical Faculty (Radiology) Position

College of Pharmacy
University of New Mexico

The University of New Mexico College of Pharmacy is seeking applicants for a unique 12-month tenure-track position at the assistant professor level. The successful candidate will establish a clinical pharmacy service in the Radiology Department of the Albuquerque Veterans Affairs Medical Center (VAMC) which focuses on the provision of pharmaceutical care through the appropriate clinical use of diagnostic imaging agents, related medications and devices, and therapeutic radiopharmaceuticals. The VAMC is a 553-bed acute and intermediate care hospital with an active ambulatory care service.

Responsibilities would include: on-site clerkship teaching, staff development, appropriate research and other scholarly activities, and didactic instruction in the college's clinical pharmacy and nuclear pharmacy teaching programs.

Candidates must (A) possess either a Pharm.D., PhD, or M.S. degree in pharmacy practice and (B) have training and/or experience, as well as show evidence of scholarly achievement, in radiopharmacy, the radiological sciences and/or the care of patients in the radiology setting. For best consideration, applications should be received by December 31, 1993. Tentative starting date is July 1, 1994. Submit letter of interest, curriculum vitae, and names, addresses, and telephone numbers of three references to: **William B. Hladik III, M.S., College of Pharmacy, The University of New Mexico, 2502 Marble NE, Albuquerque, NM 87131-1066. (505) 277-6104**

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NUCLEAR MEDICINE PHYSICIAN

Regina Health District, responsible for the coordination of hospital medical services, is seeking a Nuclear Medicine Physician for our autonomous Nuclear Medicine Department which services three hospital sites in Regina.

Reporting directly to the Head, Department of Nuclear Medicine, the candidate will be expected to provide regular full time diagnostic and therapeutic nuclear medicine services while fostering good relationship with associated departments.

The successful candidate will possess or be eligible for Royal College certification.

The city of Regina features affordable housing, an excellent university, good schools, abundant recreational and cultural facilities, plus a safe, pleasant family environment.

Interested applicants are invited to submit a resume plus three references related to nuclear medicine practice, in confidence to:

Dr. V. Trivedi
Head, Department of Nuclear Medicine
Regina Health District
1440 14th Avenue
Regina, Saskatchewan
Canada S4P 0W5

Regina Health District

MANAGER
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The Nuclear Medicine Section, Department of Radiology is seeking a radiochemist with a Masters' Degree to direct radiopharmaceutical manufacture and production for clinical Positron Emission Tomography. The candidate must possess a strong synthetic organic chemistry background, with extensive experience in modern analytical techniques and positron emitters. The candidate must have strong communicative and interactive skills and will have demonstrated leadership qualities.

This position is responsible for the overall proper operation of the laboratory and the supervision of laboratory personnel, including chemists, laboratory technicians, and students, directs and performs organic synthesis of PET radiopharmaceuticals, including preparation and assuring pharmaceutical purity of the preparations.

For consideration, send your resume to: **Personnel Services, The University of Tennessee Medical Center at Knoxville, 1924 Alcoa Highway, Knoxville, TN 37920.** UTMC is an EEO/AA/Title IX/Section 504/ ADA Employer.

THE UNIVERSITY OF TENNESSEE
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We are seeking an individual with experience in Nuclear Pharmacy to practice in and manage our nuclear pharmacy which supports a tertiary medical care facility.

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Research projects exist in the radio-labelling of monoclonal and polyclonal antibodies, involvement in investigational therapeutic regimens, and overseeing radioactive material uses within the facility. The successful candidate will also have teaching responsibilities for Pharmacy and Radiology residents rotating through Nuclear Medicine.

We offer competitive wages and an excellent flexible benefit plan. Please forward your resume to: Bruce E. Vinson, Director of Pharmacy, or call (313) 745-8632. **Harper Hospital,** 3990 John R, Detroit, Michigan 48201.

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Friday, Oct. 29, - Sunday, Oct. 31, 1993
Adams Mark Hotel, Philadelphia, PA.

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General inquires to:

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360 Cedar Lane
East Meadow, New York 11554
Phone: (718) 904-4180

SCIENTIFIC PAPER SUBMISSION FORM
1994 ANNUAL MEETING

GENERAL POLICIES:

The 1994 Scientific Program Committee and the Scientific and Teaching Sessions Committee welcome the submission of abstracts of original contributions in nuclear medicine from members and nonmembers of The Society of Nuclear Medicine for the 41st Annual Meeting in Orlando, Florida, June 5-8, 1994. Deadline for receipt of abstract is January 5, 1994.

To help you prepare your abstract, several policies have been formulated, as follows:

Instructions for Abstract Submission:

Please read this and the following pages thoroughly before preparing your abstract. Because of stringent time constraints, ***abstracts that do not comply with these instructions must be rejected.***

1. Previously published or presented materials
Materials that have been accepted or published as full articles in any journal prior to the SNM Annual Meeting should not be submitted as an abstract of a scientific paper. Abstracts appearing elsewhere in identical form will be rejected. Such data should be reformatted for the SNM audience.

2. Publication of accepted abstracts
Abstracts accepted for presentation will be published in a special supplement to the May 1994 issue of *The Journal of Nuclear Medicine* and the accepted Technologist Section abstracts in the June 1994 issue of the *Journal of Nuclear Medicine Technology.*

3. Changes after submission
Abstracts are to be submitted in final format. *No changes can be made at any time after receipt at the Central Office.*

4. Editing
On all accepted abstracts, the Scientific Program Committee reserves the right to edit those not submitted in the proper format for publication in the *Journal* and to recategorize submitted abstracts where appropriate.

5. Multiple contributions on a similar topic
Whenever possible, multiple contributions on the same or a similar subject from the same institution should be merged into a single abstract.

6. Publication of full text
Authors seeking publication for the full text of their papers are strongly encouraged to submit their work to *The Journal of Nuclear Medicine* for immediate review.

7. Day and time assignments for oral presentations cannot be changed.

8. Please refer to the "Meeting Memo" in the October 1993 issue of *The Journal of Nuclear Medicine* for further information on the Scientific Program Committee policies and objectives.

9. Awards Criteria

Society Program
Young Investigator Awards
(Oral Presentation Only)

1. *Cardiovascular Young Investigator Award*
A) All applicants must be currently enrolled or within 5 years of completing a certified training program (there is no age limit).
B) Only one (1) abstract per applicant may be submitted.
C) All former first prize winners are ineligible.
D) An identical abstract can be submitted to the regular Cardiovascular Clinical or Basic section for an independent review. An abstract submitted for the Young Investigator Award has an equal opportunity to get on the cardiovascular program as any other abstract.
E) You cannot check the "Poster-Board Only" box on the form.

2. *Computer and Instrumentation Young Investigator Award*
A) Only medical students, residents, fellows, graduate students, post-doctoral fellows and those with less than two (2) years experience as faculty members may apply.
B) You cannot check the "Poster-Board Only" box on the form.

3. *Berson-Yalow Award*
All research making use of the indicator-dilution method will be considered for this award. Abstracts which summarize research on receptor-based radiopharmaceuticals, for example, will be judged for the Berson-Yalow award. Therefore, multiple categories (such as neurosciences, oncology, and radiopharmaceuticals) in addition to the radioassay sessions for abstracts will be eligible for this award.

PLEASE CHECK THE APPROPRIATE BOX ON THE ABSTRACT FORM IF YOU WISH TO BE CONSIDERED FOR ANY OF THESE AWARDS.

SPECIFIC INSTRUCTIONS FOR PREPARATION OF ABSTRACT:

1. Abstract forms
Abstracts must be typed inside the blue rectangle on the third page of this form. One page of optional supporting data is encouraged. Additional forms are available from The Society of Nuclear Medicine, 136 Madison Avenue, New York, NY 10016-6760, telephone (212) 889-0717. **Photocopies of the abstract form cannot be accepted as originals.**

2. Printing instructions
When typing your abstract on a computer, use a letter quality printer. Do not use type that simulates script. Use a carbon ribbon or a slightly used black silk ribbon (brand new ribbons smudge; old ones print too faintly). PRACTICE typing the abstract in a rectangle 4¾ × 5¾ inches before using this form. Place left margin to left border width (inches)

DO NOT ERASE. Abstracts will be reduced photographically and will be reproduced exactly as submitted. Abstracts with smudges, errors, misspellings, poor hyphenation, skipped lines, typed-in margins, incorrect abbreviations, too-faint typing, etc. (or not conforming to prescribed rules) require retyping by the publisher at the author's expense.

3.Format for title and body
USE ALL CAPS for TITLE, following the example given below. **Use initials rather than full spelling for authors' first and middle names.** Underline the name of the presenting author. Single-space all typing, but leave a space between the title block and the body of the text. Indent each paragraph three spaces. Do not indent title. Draw special symbols in black India ink.

Make title brief, clearly indicating the nature of the investigation. Then state authors' names and institutional affiliations. Omit degrees, titles, institutional appointments, street addresses, and zip codes.

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Make title brief, clearly indicating the nature of the investigation. Then state authors' names and institutional affiliations. Omit degrees, titles, institutional appointments, street addresses, and zip codes.

4. Organization of body of abstract
Organize the body of the abstract as follows:

- **A statement of the purpose** of the study (preferably one sentence).
- **A statement of the methods used.**
- **A summary of the results** presented in sufficient detail to support the conclusions.
- **A statement of the conclusions reached.** It is not satisfactory to state "the results will be discussed" or "other data will be presented."
- **Do not use subtitles,** e.g., Methods, Results.

5.Abbreviations
Use only standard abbreviations. Abbreviations used in *The Journal of Nuclear Medicine* are preferred.

No abstract will be accepted unless the chemical identity of the radiopharmaceutical involved in the study is specified as accurately and completely as possible (for well-established radiopharmaceuticals, standard abbreviations, such as MDP, DTPA, etc., are acceptable). Abstracts in which radiopharmaceuticals are identified only by code numbers will be automatically rejected.

6.Superscripts and subscripts
The mass number of an element should follow the elemental abbreviation on the same line and be separated by a hyphen (Tc-99m). DO NOT USE SUPERSCRIPTS OR SUBSCRIPTS to identify isotopes.

CHECK LIST: Please be sure you have:

- ☐ Completed Boxes 1, 2, and 4, and signed the conflict of interest declaration and the two boxes on the last page of the abstract form.
- ☐ Enclosed the Conflict of Interest Declaration and the original abstract form and nine(9) copies.
- ☐ Designated an awards category, if appropriate (Box 3 on front of Abstract Form)
- ☐ Enclosed one self-addressed, stamped postcard with title and authors, for acknowledgement of receipt of abstract at SNM central office (optional).

EXAMPLE

TECHNETIUM-99m POLYPHOSPHATE BONE IMAGING IN LEGG-PERTHES DISEASE. J.A. Danigelis, R.L. Fisher, and M.B. Ozonoff. Newington Children's Hospital, Newington, CT.

This investigation was undertaken to compare the diagnostic usefulness of radionuclide bone imaging techniques to standard radiographic...

IMPORTANT

There are separate forms for Scientific Papers and Scientific Exhibits. Be sure you have the correct form.

All abstracts accepted for the program of The Society of Nuclear Medicine Annual Meeting will be printed directly from the typed copy of the abstract form. To ensure printing quality, the instructions must be followed completely for all abstracts. Please be sure to underline the name of the presenting author.

All Meeting Rooms will be set with dual screens and 35mm projectors. Requests for additional AV equipment must be made in writing by Friday, May 6, 1994.

Late or on-site requests will be charged to presenter.

Mail requests to: **Department of Meeting Services**
The Society of Nuclear Medicine
136 Madison Ave., New York, NY 10016-6760

CONFLICT OF INTEREST DECLARATION

Having an interest or affiliation with any corporate organization does not prevent authors from making a presentation, but the relationship must be made known in advance to the audience in accordance with the Standards of the Accreditation Council for Continuing Medical Education.

A reasonable test to guide decisions about what to disclose is whether any particular affiliation could cause embarrassment to the individual or institutions involved, or lead to questions about the authors' motives, if such affiliation(s) were made known to the general public.

Failure to disclose or false disclosure will require the SNM to remove your abstract from consideration/presentation.

Commercial organization(s) which provided direct or indirect support potentially related to the work reported in this presentation must be listed below. Identity by initials in column (C) any author(s) who have interests or affiliation with these organization(s) on the appropriate line(s). This form must be returned with your abstract.

ALL AUTHORS MUST SIGN THIS FORM EVEN IF THERE ARE NO AFFILIATION(S)/INTEREST(S) TO REPORT. YOUR ABSTRACT WILL NOT BE REVIEWED WITHOUT THESE SIGNATURES.

(A) Affiliation/Financial Interest	(B) Corporate Organization(s)	(C) Author(s)
Grants/Research Support		
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Honorarium		
Other Financial or Material Support		

The table above represents, to the best of my knowledge, all support/affiliations/interests related to this work.

Signature	Signature	Signature
Signature	Signature	Signature
Signature	Signature	Signature

Boxes 1, 2 and 4 must be completed

1

CHECK *only* **ONE** *box below.*
This abstract is intended for:
- ☐ Technologist program
- ☐ Technologist student submission
- ☐ Society program

2

CHECK *only* **ONE** *box below.*
I am willing to present this paper:
- ☐ by posterboard only
- ☐ either orally or posterboard

3

Eligibility for Special *Awards (Orally Only)
- ☐ Computer and Instrumentation Young Investigators
- ☐ Cardiovascular Young Investigators
- ☐ Berson-Yalow

4

Write *only* **ONE** *category's abbreviation in the box below:*

CLINICAL SCIENCE/ APPLICATIONS:
Bone/Joint (B/J)
Cardiovascular-Basic (CVB)
Cardiovascular-Clinical (CVC)
Cardiovascular-PET (CVP)
Endocrine (END)
Gastroenterology (GAS)
Hematology/Infectious Disease (HID)
Neurosciences:
Basic (NSB)
Neurology (NSN)
Psychiatry (NSP)
Oncology Diagnosis (antibody) (ODA)
Oncology Diagnosis (non-antibody) (ODN)
Oncology/Therapy (OT)
Pediatrics (PED)
Pulmonary (PUL)
Renal/Electrolyte/Hypertension (REH)

INSTRUMENTATION & DATA ANALYSIS
General (GEN)
PET (PET)
SPECT (SPT)

DOSIMETRY/ RADIOBIOLOGY
(DOS)

RADIOASSAY
(RSY)

RADIOPHARMACEUTICAL CHEMISTRY:
General (GPC)
Halogens (HPC)
Nuclear Magnetic Resonance Chemistry (NMR)
Positrons (PPC)
Pre-Clinical Testing (CTC)
Proteins/Antibodies/Peptides (PAC)
Technetium (TPC)

Write *only* **ONE** *category in this box* ☐

1994 ABSTRACT FORM FOR SCIENTIFIC PAPERS ONLY

The Society of Nuclear Medicine 41st Annual Meeting
Orange County Convention Center, Orlando, Florida
Sunday, June 5–Wednesday, June 8, 1994.

Do Not Fold Or Bend This Form/Abstracts Will Be Published As Typed

№ 22144

Type Abstract Here: (Be sure to stay within border–12.4 × 14.9 cm or 4⅞" × 5⅞")

List the name, address, & telephone number of the individual who should receive all correspondence.

Name

Institution

Division or Dept.

Street

City State Zip

Country Phone Number (Area Code)

TWO KEY WORDS FOR SUBJECT INDEX *(See Meeting Memo for details)*

(Electronically transmitted facsimiles will NOT be accepted)

DEADLINES
For Scientific Papers: Abstracts must be received (not postmarked) by Wednesday, January 5, 1994.
Please note: Acceptance or Rejection letters will be mailed no later than the week of February 20, 1994.

*See General Policies, #9, on the instruction page of the abstract form, for criteria of these awards. Technologist Section Awards are selected separately. Please see the December 1993 JNMT for description of these awards.

Mail the Items Listed Below to:

THE SOCIETY OF NUCLEAR MEDICINE
Attn: Abstracts
136 Madison Avenue, New York, New York 10016-6760
(212)889-0717

PLEASE NOTE: Be sure you have:

■ **Enclosed the original abstract, Conflict of Interest Declaration plus nine (9) photocopies** of the official abstract form (page 1 only).

■ **Enclosed one self-addressed, stamped postcard** with title and authors if receipt is to be acknowledged (optional). Note: Overseas or non-U.S. abstracts do not require return postage.

DO NOT FOLD abstract form; please mail in a large envelope using a cardboard backing. Abstracts received after the deadline **will not** be reviewed.

DEADLINE:
WEDNESDAY, JANUARY 5, 1994 FOR RECEIPT OF ABSTRACTS.
No abstracts will be accepted after the deadline. No exceptions!

☐ I give permission to audiotape my presentation.
☐ I DO NOT give permission to audiotape my presentation.

_____
Signature

I CERTIFY:
That this identical abstract has not been submitted to any other national or international meeting or to more than one category of this SNM Meeting.
The material will not be published as a full paper prior to its presentation at the SNM Annual Meeting.
That all of the listed authors have reviewed this abstract and agree to its submission.

_____
Signature of Principal Author

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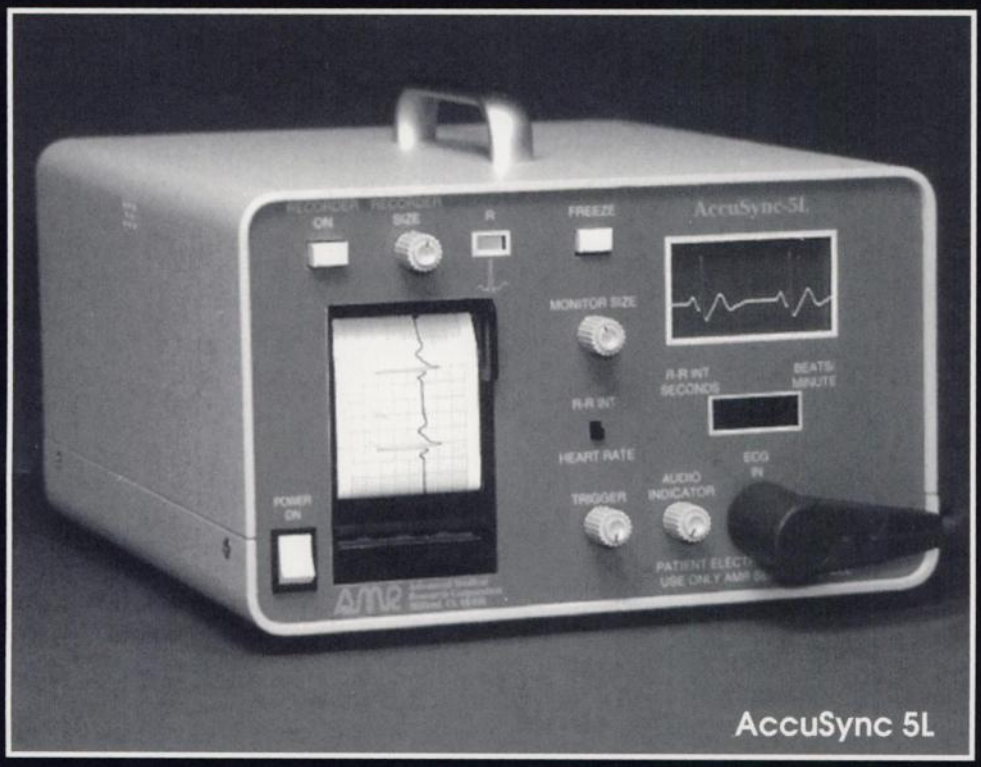

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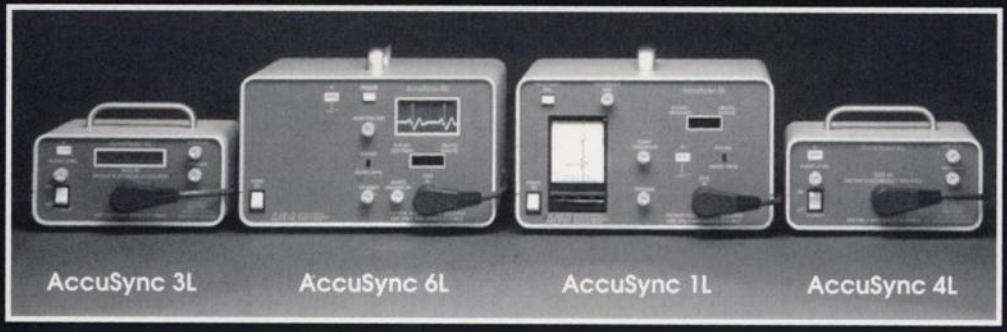
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Model	Strip Chart	CRT Monitor	HR/R-R Int	Trigger
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6L		•	•	•
1L	•		•	•
3L			•	•
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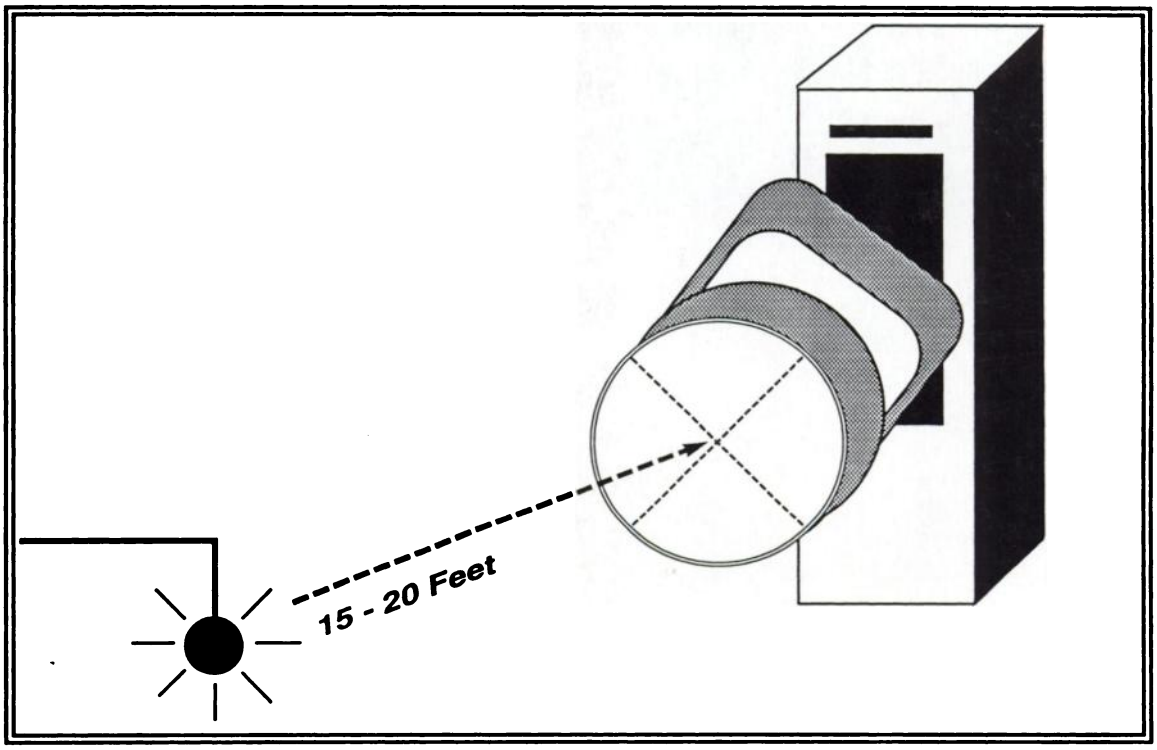

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3. Another evaluation can be done by imaging a SPECT phantom filled with 10 mCi Tc-99m. Defects to be noted: Ring artifacts.

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