

NRC FORM 313M

(9-81)

10 CFR 35

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR MATERIALS LICENSE—MEDICAL

Approved by QMB

3150-0041

Expires 9-30-83

INSTRUCTIONS—Complete Items 1 through 26 if this is an initial application or an application for renewal of a license. Use supplemental sheets where necessary. Item 26 must be completed on all applications and signed. Retain one copy. Submit original and one copy of entire application to: Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Upon approval of this application, the applicant will receive a Materials License. An NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the License is subject to Title 10, Code of Federal Regulations, Parts 19, 20 and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 26 and the appropriate fee enclosed.

1.a. NAME AND MAILING ADDRESS OF APPLICANT (institution, firm, clinic, physician, etc.) INCLUDE ZIP CODE

Advanced Medical Imaging, Inc.
111 Wabash Street
Chicago, IL 60610

TELEPHONE NO.: AREA CODE () _____

1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED (If different from 1.a.) INCLUDE ZIP CODE

Same as 1.a.

2. PERSON TO CONTACT REGARDING THIS APPLICATION

Steven M. Pinsky, M.D.

TELEPHONE NO.: AREA CODE (312) 791-2525

3. THIS IS AN APPLICATION FOR: (Check appropriate item)

a. ☒ NEW LICENSE

b. ☐ AMENDMENT TO LICENSE NO. _____

c. ☐ RENEWAL OF LICENSE NO. _____

4. INDIVIDUAL USERS (Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)

Steven M. Pinsky, M.D. Carlos Bekerman, M.D.
Shahrooz Sepahdari, M.D. Thomas M. Anderson, M.D.
U. Yun Ryo, M.D.

5. RADIATION SAFETY OFFICER (RSO) (Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)

Ernest Byrom, Ph.D.

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

| RADIOACTIVE MATERIAL LISTED IN: | ITEMS DESIRED "X" | MAXIMUM POSSESSION LIMITS (In millicuries) | ADDITIONAL ITEMS: | MARK ITEMS DESIRED "X" | MAXIMUM POSSESSION LIMITS (In millicuries) |
|--------------------------------------|----------------------|---|---|---------------------------|---|
| 10 CFR 31.11 FOR IN VITRO STUDIES | | | IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM | X | 25 mCi |
| 10 CFR 35.100, SCHEDULE A, GROUP I | X | AS NEEDED | PHOSPHORUS 32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES | | |
| 10 CFR 35.100, SCHEDULE A, GROUP II | X | AS NEEDED | PHOSPHORUS 32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS. | | |
| 10 CFR 35.100, SCHEDULE A, GROUP III | | | GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS. | | |
| 10 CFR 35.100, SCHEDULE A, GROUP IV | | AS NEEDED | IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA | | |
| 10 CFR 35.100, SCHEDULE A, GROUP V | | AS NEEDED | XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES | | |
| 10 CFR 35.100, SCHEDULE A, GROUP VI | | | | | |

6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a. (Sealed sources up to 3 mCi used for calibration and reference standards are authorized under Section 35.14(d), 10 CFR Part 35, and NEED NOT BE LISTED.)

| ELEMENT AND MASS NUMBER | CHEMICAL AND/OR PHYSICAL FORM | MAXIMUM NUMBER OF MILLICURIES OF EACH FORM | DESCRIBE PURPOSE OF USE |
|-------------------------|-------------------------------|--|--|
| I-131 | SODIUM IODIDE IN CAPSULE FORM | 25 mCi | TREATMENT OF HYPERTHYROIDISM |
| Ga-153 | SEALED SOURCE | 1500 mCi | RADIOACTIVE SOURCE FOR BONE DENSITOMETER MACHINE |

8601170278 851227
REG LIC30
12-24604-01 PDR

24. PERSONNEL MONITORING DEVICES

| TYPE (Check appropriate box) | | SUPPLIER | EXCHANGE FREQUENCY |
|---------------------------------|--|--------------------------|--------------------|
| a. WHOLE BODY | <input checked="" type="checkbox"/> FILM | R.S. LANDAUER, JR. & CO. | MONTHLY |
| | <input type="checkbox"/> TLD | | |
| | <input type="checkbox"/> OTHER (Specify) | | |
| b. FINGER | <input type="checkbox"/> FILM | | |
| | <input checked="" type="checkbox"/> TLD | R.S. LANDAUER, JR. & CO. | MONTHLY |
| | <input type="checkbox"/> OTHER (Specify) | | |
| c. WRIST | <input type="checkbox"/> FILM | | |
| | <input type="checkbox"/> TLD | | |
| | <input type="checkbox"/> OTHER (Specify) | | |

d. OTHER (Specify)

Applicant: Nov III, Metropolitan
 Check No: 1004
 Amount: \$580
 Type of Fee: 7C
 Date Check Rec'd: 11/18/85
 Received By: SK
 CHECKED NOV 19 1985 CP

25. FOR PRIVATE PRACTICE APPLICANTS ONLY

| | | |
|--|-------|--|
| a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL | | b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR. |
| NAME OF HOSPITAL | | |
| MAILING ADDRESS | | |
| CITY | STATE | ZIP CODE |
| c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS. | | |

26. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

| | |
|---|---|
| a. LICENSE FEE REQUIRED (See Section 170.31, 10 CFR 170) | b. APPLICANT OR CERTIFYING OFFICIAL (Signature) |
| | <u>X</u> <u>Steven Pinsky</u> |
| (1) LICENSE FEE CATEGORY | (1) NAME (Type of Print) |
| <u>10 CFR 170, 170.31, 7c</u> | <u>STEVEN M. PINSKY, M.D.</u> |
| (2) LICENSE FEE ENCLOSED: \$ | (2) TITLE |
| | <u>X</u> <u>Chief of Nuclear Medicine</u> |
| | c. DATE |
| | <u>X</u> <u>11/18/85</u> |

Item 7

Medical Isotopes Committee

As stated in Regulatory Guide 10.8, Revision 1, October 1980, Licenses issued to physicians for private practice, do not require the formation of a medical isotopes committee.

Item 7
September 1, 1985

ITEM 8

TRAINING AND EXPERIENCE

AUTHORIZED USER OR RADIATION SAFETY OFFICER

Refer to Nuclear Regulatory Commission License Numbers
12-01257-04 and 12-00074-05 for information pertaining to
Item 8.

Item 8
September 1, 1985

CURRICULUM VITAE

NAME: Steven M. Pinsky, M.D.

BIRTHDATE: February 2, 1942

BIRTHPLACE: Milwaukee, Wisconsin

MARITAL STATUS: Married - Sue Rosenzweig - 1966

DEPENDENTS: Son - Mark - Born 1969
Daughter - Lisa - Born 1972

EDUCATION: B.S. - University of Wisconsin
Madison, Wisconsin, 1964

M.D. - Loyola University Stritch School
of Medicine, Chicago, Illinois, 1967

INTERNSHIP: Evanston Hospital, Northwestern University,
Evanston, Illinois - Straight Medicine,
1967 - 1968

RESIDENCY: The University of Chicago, Department of
Radiology, Chicago, Illinois, 1968 - 1971

The University of Chicago, Chief Resident
in Diagnostic Radiology, 1970 - 1971

AWARDS: Clinical Fellow of the American Cancer
Society, 1969 - 1970

Army Commendation Medal

Fellow, American College of Nuclear Physicians,
1981

Fellow, American College of Radiology, 1984

BOARD CERTIFICATION: National Board of Medical Examiners - 1968
American Board of Radiology - 1972
American Board of Nuclear Medicine - 1973

LICENSURE: Illinois
Maryland
California

ACADEMIC APPOINTMENTS:

THE UNIVERSITY OF CHICAGO, CHICAGO, ILLINOIS:

- Instructor, Department of Radiology, 1971-73
- Assistant Professor, Department of Medicine and Radiology, 1973-76
- Associate Professor, Department of Radiology and Medicine, 1976- 1985
- Professor, Department of Radiology 1985-

PROFESSIONAL APPOINTMENTS:

MICHAEL REESE HOSPITAL AND MEDICAL CENTER,
CHICAGO, ILLINOIS:

Director, Division of Nuclear Medicine, 1973-
Vice-Chairman, Department of Radiology - 1984
Triton College, Medical Director, Nuclear
Medicine Technician School, River Grove, IL,
1974-

PROFESSIONAL ORGANIZATIONS:

- American College of Radiology
- Society of Nuclear Medicine
- Radiological Society of North America
- American College of Nuclear Physicians
- Illinois Radiologic Society
- Chicago Radiologic Society
- Association of University Radiologists
- American Medical Association
- Illinois Medical Society
- Chicago Medical Society

POSITIONS HELD IN PROFESSIONAL
ORGANIZATIONS:

SOCIETY OF NUCLEAR MEDICINE:

- Member, Scientific Exhibits Committee,
1974, 1975, 1976, 1979
- Chairman, Scientific Exhibits Committee, 1975
- Member, Scientific Program Committee, 1976-76,
1978-80
- Academic Council 1976-84
- Member, Recertification Subcommittee of
Education Committee, 1974
- Co-consultant, Local Arrangement for 1977
Meeting
- Trustee, 1979-87
- Subchairman, Clinical Science and Application
Tract, 1980 -
- Nominating Committee, 1981-82
- Chapter Presidents Committee, 1980-81
- Short-Range Planning Committee, 1979-80
- Member, Bylaws Committee, 1985-1986
- Member, Audit Committee, 1985-1989

POSITIONS HELD IN PROFESSIONAL
ORGANIZATIONS (Continued):

CENTRAL CHAPTER, SOCIETY OF NUCLEAR MEDICINE:

- Member, Membership Committee, 1973-75
- Chairman, Publications Committee, 1975
- Board of Governors, 1976-78; 1981-83
- Member, Program Committee, 1976-78
- Secretary-Treasurer, 1978-80
- President, 1980-81
- Chairman, Nominating Committee, 1981-82
- Member, Nominating Committee, 1981-85

AMERICAN COLLEGE OF NUCLEAR PHYSICIANS:

- Member, ACNP Nominating Committee, 1977-78
- Delegate from Illinois, 1974-77
- Member, Departmental Resources Committee,
1974-77
- Member, Industrial Relations Committee, 1975-
- Member, Consumer Affairs Committee, 1975-78
- President, Nuclear Physicians of Illinois, 1978
- Chairman, Publications Committee, 1978-79
- Member, Publications Committee, 1979-84
- Member, Finance Committee, 1979-84
- Chairman, Finance Committee, 1981-82
- Treasurer, 1982-84

CHICAGO RADIOLOGIC SOCIETY

- Executive Committee, 1984-87
- Nominating Committee, 1983-85
- Program Committee, 1980-85

AMERICAN COLLEGE OF RADIOLOGY:

- Co-Chairman, Nuclear Radiology, 1980
- Chairman, Categorical Course Nuclear Radiology,
1985

MILITARY:

Assistant Chief, Nuclear Medicine Service
Department of Radiology, Walter Reed General
Hospital, Washington, D.C., 1971-73
Rank at Discharge - Major

CONSULTANT:

North Chicago Veterans Administration Hospital

PUBLICATIONS

1. Haus, A.G., Pinsky, S.M. and Marks, J.E.: A Technique for Imaging Patient Treatment Area During a Therapeutic Radiation Exposure. Radiology, Vol. 97, No. 3, pg. 653-656, December 1970.
2. Pinsky, S.M., Hoffer, P.B., Flom, R., Quinn, J.L. and Gottschalk, A.: Correlation Between Brain Tumor Detectability on Brain Scan and Protein Levels of the Spinal Fluid. Radiology, Vol. 98, No. 1, pg. 672-673, March 1971.
3. Marks, J.E., Pinsky, S.M. and Griem, M.L.: The Extended Mantle Field in the Radio-Therapeutic Treatment on Malignant Lymphomas. Radiology, Vol. 100, No. 2, pg. 423-425, August 1971.
4. Lawrence, A.M., Pinsky, S.M. and Goldfine, I.D.: Conventional Radiation Therapy in Acromegaly: A Review and Reassessment. Archives of Internal Medicine, Vol. 128, No. 3, pg. 369-377, September 1971.
5. Turner, D.A., Pinsky, S.M., Gottschalk, A., Hoffer, P.B., Ultmann, J.E., and Harper, P.U.: The Use of Gallium-67 Scanning in the Staging of Hodgkin's Disease. Radiology, Vol. 104, pg. 97-101, July 1972.
6. Bailey, T.B., Pinsky, S.M., Mittenmeyer, B.T., Borski, A.A. and Johnson, M.: A New Adjuvant in Testis Tumor Staging: Gallium-67 Citrate. The Journal of Urology, Vol. 110, pg. 307-310, September 1973.
7. Dunson, G.L., Thrall, J.H., Stevenson, J.S. and Pinsky, S.M.: ^{99m}Tc Minicolloid for Radionuclide Lymphography. Radiology, Vol. 110, pg. 307-310, September 1973.
8. Arnold, J.E., Johnston, A.S. and Pinsky, S.M.: The Influence of True Counting Rate and the Photopeak Fraction of Detected Events on Anger Camera Deadtime. Journal of Nuclear Medicine, Vol. 15, No. 6, pg. 412-416, June 1974.
9. Thrall, J.H., Ghaed, N., Geslien, G.E., Pinsky, S.M., and Johnson, M.C.: Pitfalls in ^{99m}Tc Polyphosphate Skeletal Imaging. American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, Vol. 121, No. 4, pg. 739-744, August 1974.
10. Colombetti, L.G. and Pinsky, S.M.: The Potential Use of Gastrointestinal Hormones and Enzymes for Pancreatic Scanning. Proceedings of the First World Congress of Nuclear Medicine, pg. 55-57, October 1974.

11. Ryo, U.Y., Arnold, J.E. and Pinsky, S.M.: Imaging of Metastatic Bone Lesions with ^{32}P -Sodium Phosphate. Proceedings of the First World Congress of Nuclear Medicine, pg. 973-975, October 1974.
12. Ghaed, N., Thrall, J.H., Pinsky, S.M., and Johnson, M.C.: Detection of Extraosseous Metastases from Osteosarcoma with $^{99\text{m}}\text{Tc}$ Polyphosphate Bone Scan. Radiology, Vol. 112, No. 2, pg. 373-375, August 1974.
13. Ryo, U.Y., Schwartz, M.P., Zarnow, H., Lee, J.I. and Pinsky, S.M.: Radionuclide Angiography with $^{99\text{m}}\text{Tc}$ -Labeled Red Blood Cells for the Detection of Aortic Aneurysm. Journal of Nuclear Medicine, Vol. 15, No. 11, pg. 1014-1017, November 1974.
14. Colombetti, L.G., Pinsky, S.M. and Moerlien, S.: A Rapid Column Chromatographic Determination of Free $^{99\text{m}}\text{Tc}$ in Labeled Radiopharmaceuticals. Radiochemical and Radioanalytical Letters, Vol. 20, No. 2, pg. 77-85, November 1974.
15. Pinsky, S.M.: Clinician's Guide to Nuclear Medicine Imaging Procedures. Primary Care, Vol. 1, No. 4, pg. 707-730, December 1974.
16. Ryo, U.Y., Siddiqui, A. and Pinsky, S.M.: Visualization of a Non-Vascular Cranial Tumor in the Cerebral Flow Study. Journal of Nuclear Medicine, Vol. 16, No. 6, pg. 462-464, June 1975.
17. Arnold, J., Pinsky, S.M., Ryo, U.Y., Frohman, L., Schneider, A., Favus, M., Stachura, M., Arnold, M., and Colman, M.: $\text{Tc}^{99\text{m}}$ Pertechnetate Thyroid Scintigraphy in Patients Predisposed to Thyroid Neoplasms by Prior Radiotherapy to the Head and Neck. Radiology, Vol. 115, No. 3, pg. 653-657, June 1975.
18. Geslien, G.E., Pinsky, S.M., Poth, R.K., and Johnson, M.C.: The Sensitivity and Specificity of $^{99\text{m}}\text{Tc}$ -Sulfur Colloid Liver Imaging in Diffuse Hepatocellular Disease. Radiology, Vol. 118, pg. 115-119, January 1976.
19. Colombetti, L.G., Moerlin, S. and Pinsky, S.: Rapid and Reliable Preparation of Macroaggregated Albumin Suitable for Lung Scintigraphy. International Journal of Nuclear Medicine and Biology, Vol. 2, pg. 180-184, 1975.
20. Mohammadzadeh, A.S., Colombetti, L.G., Ryo, U.Y. and Pinsky, S.: Uptake of ^{14}C -Ascorbic Acid by the Adrenal and Pituitary Glands, and Effect of ACTH or Dexamethasone Administration. International Journal of Nuclear Medicine and Biology, Vol. 3, pg. 17-20, 1976.
21. Ryo, U.Y., Mohammadzadeh, A., Colombetti, L., Siddiqui, A. and Pinsky, S.: Evaluation of $^{99\text{m}}\text{Tc}$ -RBC, It's Labeling Procedure and *In-Vitro* Stability. Journal of Nuclear Medicine, Vol. 17, No. 2, pg. 133-316, February 1976.

22. Ryo, U.Y., Arnold, J., Colman, M., Arnold, M., Favus, M., Frohman, L., Schneider, A., Stachura, M., and Pinsky, S.M.: Sensitivity of Thyroid Scintigram Obtained with ^{99m}Tc -Pertechnetate and Gamma Camera with Pinhole Collimator. JAMA, Vol. 235, No. 12, pg. 1235-1238, March 22, 1976.
23. Rossi, R.P., Ovadia, J., Renk, K., Johnston, A.S., and Pinsky, S.M.: Radiation Safety Considerations in the Management of Patients Receiving Therapeutic Doses of ^{131}I . Proceedings of the Ninth Midyear Topical Symposium, Health Physics Society. Held 2/9/76, Denver, Colorado, pg. 279-286.
24. Arnold, J.E. and Pinsky, S.M.: Comparison of ^{99m}Tc and ^{123}I for Thyroid Imaging. Journal of Nuclear Medicine, Vol. 17, No. 4, pg. 261-267, April, 1976.
25. Favus, M.J., Schneider, A.B., Stachura, M.E., Arnold, J.E., Ryo, U.Y., Pinsky, S., Colman, M., Arnold, M.J. and Frohman, L.A.: Thyroid Malignancy Occurring as a Late Consequence of Head and Neck Irradiation: Evaluation of 1056 Patients. New England Journal of Medicine, Vol. 294, No. 19, pg. 1019-1025, May 1976.
26. Ryo, U.Y., Colombetti, L.G., Polin, S.G., and Pinsky, S.M.: Radionuclide Venography - Significance of Delayed Washout; Visualization of the Saphenous System. Journal of Nuclear Medicine, Vol. 17, No. 7, pg. 590-595, July 1976.
27. Ryo, U.Y., Siddiqui, A., Yum, H.Y., and Pinsky, S.M.: Focal Defect Due to Renal Impression in Anterior Liver Imaging. Clinical Nuclear Medicine, Vol. 1, No. 2, pg. 64-69, July 1976.
28. Colombetti, L.G., Moerlien, S., Patel, G.C., and Pinsky, S.: Rapid Determination of Oxidation State of Unbound ^{99m}Tc and Percentage of Labeling in ^{99m}Tc Labeled Radiopharmaceuticals. Journal of Nuclear Medicine, Vol. 17, No. 9, pg. 805-809, September 1976.
29. Ryo, U.Y. and Pinsky, S.M.: Radionuclide Angiography with ^{99m}Tc Technetium-RBCs. Critical Reviews in Clinical Radiology and Nuclear Medicine, Vol. 8, No. 1, pg. 107-128, August 1976.
30. Pinsky, S.M. and Henkin, R.: Gallium-67 Tumor Scanning. Seminars in Nuclear Medicine, Vol. 6, No. 4, pg. 397-409, October 1976.
31. Ryo, U.Y., Lee, J.I. and Pinsky, S.M.: Radionuclide Venography in the Upper Extremity. Clinical Nuclear Medicine, Vol. 1, No. 6, pg. 242-244, November 1976.

32. Ryo UY, Qazi M, Srikantaswamy S and Pinsky SM: Radionuclide venography - A correlative study with contrast venography. Journal of Nuclear Medicine, Vol. 18, No. 1, pg. 11-17, January 1977.
33. Schneider AB, Favus MJ, Stachura ME, Arnold JE, Ryo UY, Pinsky SM, Colman M, Arnold M and Frohman L: Plasma thyroglobulin in detecting thyroid carcinoma in childhood head and neck irradiation. Annals of Internal Medicine, Vol. 86, No. 1, pg. 29-33, January 1977.
34. Schey WL, Pinsky SM, Dragomer A and Lipschitz H: Hepatic duct diverticulum simulating a choledochal cyst. American Journal of Roentgenology, Vol. 128, No. 2, pg. 318-320, February 1977.
35. Siddiqui A, Ryo UY and Pinsky SM: Arteriovenous malformation simulating Meckel's diverticulum on 99mTc pertechnetate abdominal scintigraphy. Radiology, Vol. 22, No. 1, pg. 173-174, January 1977.
36. Schey WL, Pinsky SM and Post M: Bone tumors in identical twins. Clinical Nuclear Medicine, Vol. 2, No. 3, pg. 82-86, March 1977.
37. Yum HY, Ryo UY, Patel D and Pinsky SM: Radionuclide brain imaging in cerebral cysticercosis. Clinical Nuclear Medicine, Vol. 2, No. 1, pg. 10-11, January 1977.
38. Siddiqui A, Ryo UY, Yum HY and Pinsky S: Increased blood flow on radionuclide cerebral flow studies in subdural hematoma. Clinical Nuclear Medicine, Vol. 2, No. 12, pg. 436-440, January 1978.
39. Ryo UY, Roh SK, Balkin RB, Siedband LB, Sobel GW and Pinsky SM: Extensive metastases in Peutz-Jeghers Syndrome. JAMA, Vol. 239, No. 21, pg. 2268-2269, May 26, 1978.
40. Ryo UY, Johnston AS, Kim I and Pinsky SM: Adrenal scanning and uptake with 6 β -iodomethylnorcholesterol (NP-59). Radiology, Vol. 128, No. 1, pg. 157-161, July 1978.
41. Lome L, Pinsky SM and Levy L: Dynamic renal scan in the non-functioning kidney. Journal of Urology, Vol. 121, pg. 148-152, February, 1979.
42. Ryo UY, Bilow PA and Pinsky S: Lateral-view ventilation images with Xe-133. Clinical Nuclear Medicine, Vol. 4, No. 2, pg. 47-50, 1979.
43. Schneider AB, Pinsky S, Bekerman C and Ryo UY: Characteristics of 108 thyroid cancers detected by screening in a population with a history of head-and-neck irradiation. Cancer, Vol. 46, No. 5, pg. 1218-1227, September, 1980.
44. Johnston AS, Minarcik J, Rossi R and Pinsky S: Autopsy experience with a radioactive cadaver. Health Physics, Vol. 37, pg. 231-236, 1979.

45. Johnston AS, Colombetti LG, Baker SI and Pinsky SM: Dose calibrator readings due to radionuclidic impurities found in radiopharmaceuticals. Nuclearmedizin, Vol. 19, No. 1, pg. 1-6, 1980.
46. Johnston AS, Gergans GA, Kim I, Barnes E, Kaplan E and Pinsky SM: Deadtime of computers coupled with anger cameras: Counting losses and false counts. In Single Photon Emission Computed Tomography and Other Selected Computer Topics. Published by the Society of Nuclear Medicine, pg. 219-237, 1980.
47. Pinsky SM, Yum HY, Patel D, Bekerman C and Ryo UY: Comparison of radionuclide brain scan and computerized tomography for the detection of intracranial infections. Clinical Nuclear Medicine, Vol. 6, No. 1, pg. 12-18, January, 1981.
48. Bitran JD, Bekerman C and Pinsky SM: Sequential scintigraphic staging of small cell carcinoma. Cancer, Vol. 47, No. 8, pg. 1971-1975, April, 1981.
49. Schneider AB, Bekerman C, Favus M, Frohman LA, Gonzalez C, Ryo UY, Sievertsen G and Pinsky SM: Continuing occurrence of thyroid nodules following head and neck irradiation relation to plasma thyroglobulin concentration. Annals of Internal Medicine, Vol. 94, pg. 176-180, 1981.
50. Ryo UY, Stachura ME, Schneider AB, Nichols R, Cogan SR and Pinsky S: Significance of extrathyroidal uptake of Tc-99m and I-123 in the thyroid scan: Concise communication. Journal of Nuclear Medicine, Vol. 22, No. 12, pg. 1039-1042, December, 1981.
51. Gupta RJ, Bekerman C, Sicilian L, Oparil S, Pinsky S and Szidon JP: Gallium-67 citrate scanning and serum angiotensin converting enzyme levels in sarcoidosis. Radiology, Vol. 144, No. 4, pg. 895-899, September, 1982.
52. Gonzalez-Villalpando C, Frohman L, Bekerman C, Favus M, Pinsky S, Ryo UY, Shore-Friedman E, and Schneider A: Scintigraphic thyroid abnormalities after radiation: A controlled study with 99mTc-pertechnetate scanning. Annals of Internal Medicine, Vol. 97, No. 1, pg. 55-58, July, 1982.
53. Liebman R, Ryo UY, Bekerman C and Pinsky SM: Ga-67 scan of a homosexual man with pneumocystis carinii pneumonia. Clinical Nuclear Medicine, Vol. 7, No. 10, pg. 480-481, October, 1982.
54. Ryo UY, Wilczak D, Kim I, Pinsky SM: A scan artifact caused by a band of scattered photons. Radiology, Vol. 146, No. 3, pg. 840-841, March, 1983.
55. Ryo UY and Pinsky SM: Artifactual lesion on a liver scan caused by an infiltrate in the right lung base. Clinical Nuclear Medicine, Vol. 8, No. 8, pg. 378, 1983.

56. Ryo UY, Vaidya PV, Schneider AB, Bekerman C and Pinsky SM: Thyroid imaging agents: A comparison of I-123 and Tc-99m pertechnetate. Radiology, Vol. 148, No. 3, pg. 819-822, 1983.
57. Green L, Konwiser M, Ryo UY, Bekerman C, and Pinsky SM: Is routine hepatic flow study cost effective? A case of hepatic cavernous hemangioma evaluated with dynamic flow study and delayed blood pool images. Journal of the National Medical Association, Vol. 76, No. 1, pg. 78-80, 1984.
58. Bekerman C, Pavel DG, Bitran J, Ryo UY, and Pinsky S: The effects of inadvertent administration of antineoplastic agents prior to Ga-67 injection: Concise communication. Journal of Nuclear Medicine, Vol. 25, No. 4, pg. 430-435, April, 1984.
59. Martin WB, Ryo UY, and Pinsky SM: A focal defect in the dome of the liver caused by an ectopic gallbladder. Noninvasive Medical Imaging, Vol. 1, No. 2, pg. 115-117, April, 1984.
60. Sherkow L, Ryo UY, Fabich D, Patel GC, and Pinsky SM: Visualization of the liver, gallbladder and intestine on bone scintigraphy. Clinical Nuclear Medicine, Vol. 9, No. 8, August, 1984.
61. Goldstein R, Ryo UY, and Pinsky SM: Metastatic calcification of the stomach imaged on a bone scan. Clinical Nuclear Medicine, Vol. 9, No. 8, August, 1984.
62. Blend M, Bekerman C, Managan N, and Pinsky S: Axillary-femoral shunt visualization: A serendipitous finding during abdominal radionuclide angiogram. Clinical Nuclear Medicine, Vol. 9, No. 12, 730-731, December 1984.
63. Vesely JJ, Bekerman C and Pinsky S: Complementary role of chest roentgenogram in interpretation of liver 99mTc-SC scan. Clinical Nuclear Medicine, Vol. 9, No. 8, 460-462, August 1984.
64. Bekerman C, Szidon JP and Pinsky S: The role of gallium-67 in the clinical evaluation of sarcoidosis. Seminars Nuclear Medicine, Vol. 14(4), pg. 236-323, 1985.
65. Apodaca DM, Roseland C, Bekerman C, and Pinsky S: Bladder in the sac. In print. Clinical Nuclear Medicine, Vol. 10, NO. 8, pg. 596-597, August, 1985.
66. Ryo UY and Pinsky S: Some observations on the use of Iodine-123 for thyroid imaging. (In) The Developing Role of Short-Lived Radionuclides in Nuclear Medical Practice. Published by Office of Scientific and Technical Information United States Department of Energy, pg. 415-422, 1985.
67. Pera A, Seevers R, Meyer K, Hall C, Bekerman C, Anderson T, Pinsky S, and Ryo UY: Gastric ulcer localization by direct in vivo labeling of sucralfate. Accepted for publication in Radiology, Vol. 156, pg. 783-786, September 1985.
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BOOKS AND CHAPTERS

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CURRICULUM VITAE

CARLOS BEKERMÁN, M.D.

DATE OF BIRTH: September 17, 1939

PLACE OF BIRTH: Montevideo Uruguay, South America

MARTIAL STATUS: Single

VISA STATUS: Permanent Resident, A 30-669-010 August 2, 1975

HOME ADDRESS: 5471 S. Hyde Park Boulevard
Apartment 2B
Chicago, IL 60615
Telephone: (312) 955-5382

MAILING ADDRESS: Michael Reese Hospital and Medical Center
Division of Nuclear Medicine
29th Street & Ellis Avenue
Chicago, IL 60616

CURRENT POSITION: Clinical Staff - Division of Nuclear Medicine
July 1976 - Present

FACULTY POSITION: Associate Professor, Radiology and Medicine
Pritzker School of Medicine
University of Chicago
July 1978 - Present

EDUCATION

| | |
|----------------------------|---|
| March 1945 - December 1950 | Consejo Nacional de Enseñanza Primaria Uruguay |
| March 1951 - December 1956 | Consejo Nacional de Enseñanza Secundaria, Liceo "Miguel C. Rubino" - Uruguay Bachelor of Sciences |
| March 1957 - December 1967 | Faculty of Medicine, Montevideo, Uruguay Degree: Doctor in Medicine |
| March 1968 - March 1969 | School of Graduates, University of The Republic |
| August 1970 - July 1972 | Faculty of Medicine, Montevideo, Uruguay Post-graduate Training in Internal Medicine |

EMPLOYMENT RECORD:

1. Assistant Instructor, Department of Bacteriology
May 1960 - February 1961
April 1961 - July 1961
April 1962 - February 1963

2. Assistant, Department of Medicine "D"
March 1968 - March 1969
August 1970 - June 1972

PUBLIC HEALTH MINISTRY, MONTEVIDEO, URUGUAY

1. Externship - April 1962 to March 1963
2. Internship (rotating, 6 months in each service)
February 19, 1963 - January 6, 1968

Department of Dermatology
Institute of Oncology
Department of Cardiology
Department of Gastroenterology
Hospital de Paysandu
Department of Medicine "D"
Department of Pediatrics "A"
Department of Ophthalmology
3. Assistant, Emergency Department
April 1968 - July 1969
4. Assistant, Nuclear Medicine Center
Montevideo, Uruguay
July 1970 - June 1972

UNIVERSITY OF CHICAGO

1. Fellow in Nuclear Medicine: Argonne Cancer Research Hospital and Department of Radiology, The University of Chicago (Sponsored by the International Atomic Energy Agency - Vienna). July 1, 1969 - June 30, 1970.
2. Instructor, Department of Radiology, The University of Chicago, July 1, 1972 - June 30, 1974.
3. Assistant Professor, Department of Radiology, The University of Chicago, July 1, 1974 - June 30, 1976.
4. Assistant Professor Radiology and Medicine - Pritzker Medical School - (Michael Reese Medical Center) July 1, 1976 - June 30, 1978.
5. Associate Professor Radiology and Medicine - Pritzker Medical School, University of Chicago (MRMC) July 1, 1978 to present.

OTHER INSTITUTIONS

- Consultant/lecturer to the Naval Regional Medical Center, Great Lakes, July 1, 1974 - 1978.
- Consultant at Christ Hospital, Oak Lawn, Illinois - July 1977 to July 1979
- Consultant/lecturer at Cook County Hospital, Chicago, Illinois - July 1977 to July 1979.
- Consultant/lecturer, Downey Veteran's Hospital, North Chicago, IL, 1982 to present

DIPLOMATE:

Educational Council for Foreign Medical Graduates.
Certificate Number 116 548 9 - February 12, 1969.

The American Board of Nuclear Medicine.
Certificate Number 02706 - May 18, 1973.

School of Graduates, University of the Republic,
Montevideo, Uruguay.
Board Certified in Nuclear Medicine,
Certificate Number 671
February 7, 1975.

Virginia State Board of Medicine,
License Number 24511 - June 1, 1974.

Department of Registration and Education,
Springfield, Illinois,
License Number 36-499-16 1ss - October 10, 1974.

AWARDS:

Silver Medal for Scholarship, Faculty of Medicine,
Montevideo, Uruguay, 1967.

MEMBERSHIPS:

Society of Medicine of Montevideo, Uruguay
Uruguayan Society of Biology and Nuclear Medicine.
The Society of Nuclear Medicine, U.S.A.
Medical Union of Uruguay, Member of the World
Association.

American College of Radiology.

Radiological Society of North America.

American College of Nuclear Physicians.

Member, Tumor Board, Michael Reese Hospital, 1983-84

Member, Oncology Council, Michael Reese Hospital, 1983-84

Secretary: Uruguayan Society of Biology and Nuclear
Medicine - 1969.

Member, Editorial Board of the Journal of Biology
and Nuclear Medicine, Latin-American Society of
Biology and Nuclear Medicine, 1969 - 1972.

PROFESSIONAL ACTIVITIES:

Radioisotope Methodology and Application, National
Atomic Energy Commission, Buenos Aires, Argentina,
March - May 1969.

Advanced Regional Training Course on plans and pro-
cedures for radiation emergencies conducted by the
I.A.E.A. in cooperation with the Government of the
Republic of Argentina, Buenos Aires, November, 9-20,
1970.

SPECIALIZATION COURSES:

PUBLICATIONS

1. Touya (Jr) JJ, Osorio A, Touya E, Bekerman C, Paez A, Ferrari M: Scintigraphy of the liver, spleen, kidney, brain, heart and bones in the diagnosis of hydatid cysts. Medical Radioisotope Scintigraphy, 11:459-487, I.A.E.A., Vienna, 1968.
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3. Bekerman C, Touya E, Paez A, Ferrando R, Touya (Jr) JJ, Ferrari M: Cardio-vascular blood pool scintigraphy with 113-In in the diagnosis of aneurysms of the thoracic aorta. El Torax, 17: (4) 248-258, 1968.
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5. Osorio A, Touya (Jr) JJ, Paez A, Bekerman C, Touya E: Renal scintigraphy in Pediatrics. Archivos de Pediatria del Uruguay, 40: (2) 128-138, 1969.
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CURRICULUM VITAE

NAME : U. Yun Ryo

SEX : Male

BORN : Kyungpook, Korea ; August 2nd, 1935

MARRIED : Bann Kang, M.D.

EDUCATION : Ph.D. in Physiology, Graduate School of Kyungpook
National University, Daegu, Korea ; 1962 - 1966

Master of Medical Science, Graduate School of Kyungpook
National University, Daegu, Korea ; 1960 - 1962

M.D., School of Medicine, Kyungpook National University
Daegu, Korea ; 1956 - 1960

A.B., Pre-Medical School, Kyungpook National University
Daegu, Korea ; 1954 - 1956

GRADUATE TRAINING : Residency and Fellowship : Department of Internal
Medicine, Nuclear Medicine Division, University of
Michigan Medical Center, Ann Arbor, Michigan
1971 - 1973

Internship : The Creighton University, School of
Medicine, St. Joseph Hospital, Omaha, Nebraska
1969 - 1970

Fellowship : China Medical Board of New York, Inc.
Department of Physiology, Downstate Medical School,
State University of New York, Brooklyn, New York
1966 - 1967

International Atomic Energy Agency Course on the
Utilization of Radioisotopes in Medicine
Seoul, Korea 1963

U. Yun Ryo, M.D., Ph.D.

| | | |
|-------------------------------------|---|--|
| ACADEMIC APPOINTMENT | : | Professor in Radiology and Medicine The University of Chicago, Pritzker School of Medicine Chicago, Illinois 1985 - Associate Professor in Radiology and Medicine The University of Chicago, Pritzker School of Medicine Chicago, Illinois 1978 - 1985 Assistant Professor in Medicine The University of Chicago, Pritzker School of Medicine Chicago, Illinois 1973 - 1978 Instructor in Clinical Medicine, University of Michigan Medical Center, Ann Arbor, Michigan 1972 - 1973 Visiting Assistant Professor in Medicine The Creighton University, Omaha, Nebraska 1970 - 1971 Assistant Professor in Physiology, School of Medicine Kyungpook National University, Daegu, Korea 1967 - 1969 Instructor in Physiology, School of Medicine Kyungpook National University, Daegu, Korea 1964 - 1967 Assistant Instructor, School of Medicine Kyungpook National University, Daegu, Korea 1961 - 1964 |
| BOARD CERTIFICATIONS | : | Licensed for the Handling of Radioisotopes Government of the Republic of Korea, # 71, March, 1964 Certified by the Educational Council for Foreign Medical Graduates, # 067-797-1, February, 1969 Certified, Specialty Board, American Board of Nuclear Medicine, #02496, May, 1973 |
| LICENSED FOR MEDICAL PRACTICE | : | Republic of Korea, #6435, July, 1960 State of Illinois, #36-48410, October, 1973 State of Michigan, #33326, November, 1973 |

U. Yun Ryo, M.D.

PROFESSIONAL
APPOINTMENT :

Associate Director, Division of Nuclear Medicine,
Michael Reese Hospital and Medical Center,
Chicago, Illinois. January, 1977 -

Assistant Director, Division of Nuclear Medicine,
Michael Reese Hospital and Medical Center,
Chicago, Illinois. July, 1973-December, 1976.

Attending Staff, Department of Radiology and
Medicine, Michael Reese Hospital and Medical Center,
July, 1980 -

Attending Staff, Department of Medicine, Michael
Reese Hospital and Medical Center.
July, 1976 - June, 1980.

Associate Attending Staff, Department of Medicine,
Michael Reese Hospital and Medical Center,
Chicago, Illinois. July, 1973 - June, 1976.

Member, Medical Research Institute, Michael Reese
Hospital and Medical Center. October, 1973.

Member, Clinical Research Committee, Michael Reese
Hospital and Medical Center. October, 1977.
Vice Chairman, October, 1980 - September, 1981
Chairman, October, 1981 - September, 1982.

PROFESSIONAL
SOCIETIES :

American Federation of Clinical Research, Mid-West
Chapter, 1970.

American Society of Nuclear Medicine, Full Member,
1972.

Central Chapter, American Society of Nuclear
Medicine, 1972.

American College of Nuclear Physician, Charter
Member, 1974.

The Radiological Society of North America,
Associate Member, 1978.

The Radiological Society of North America,
Member, 1982.

American Thyroid Association, Member, 1979.

U. Yun Ryo, M.D., Ph.D.

Professional : Korean Medical Association of America
Societies(Cont.) Member 1976 -
Scientific and Education Committee,
Member, 1978, Chairman, 1981 - 1982

American Medical Association
Member, 1983 -

Chicago Medical Society
Member, 1983 -

Illinois Medical Society
Member, 1983 -

SOCIAL CLUB/
SERVICE : Korean American Community Services,
Board Member, 1977 - 1983
Vice-President, 1980 - 1981, President, 1981 - 1983

United Christian Community Service,
Board Member, 1980 - 1982

Korean Senior Citizens Housing Inc.
Board Member, Treasurer, 1980 - 1984

Coalition of Asian American for Greater Chicago,
Board of Director and Co-Chairman, 1982 -

Korean American Association of Chicago,
Board Member, 1982 -

AWARDS : Distinguished Service Award ;
Korean American Community Service, 1983
Korean American Association of Chicago, 1984
United Christian Community Service, 1982
Korean Society of Nuclear Medicine, 1981, 1982

Fellowship Award, China Medical Board of New York, Inc.
1965

Fellowship Award, University of Michigan Medical Center
National Cancer Institutes, 1972

Scientific Exhibition Award, Society of Nuclear Medicine,
1975

CITIZENSHIP : United States of America
By Naturalization, 1975

CONTROL NO. 80129

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The effect of local X-irradiation on the P-32 uptake of rat's femur.
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11. Ryo UY :
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13. Kwon DC, Sohn BW, Ryo UY :
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The Journal of the Korean Medical Association, 8 : 123-132, 1965
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Gas exchange in the intestinal tract of the rabbit.
The Journal of the Korean Medical Association, 8 : 246-254, 1965
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and The Journal of Laboratory and Clinical Medicine 67 : 873-878, 1966
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2. Radionuclide Angiography. Chicago Medical Society, 24th Annual Midwestern Study Conference. Chicago, Illinois. May 12, 1977.
3. Thyroid Scan in Patients with History of Head and Neck Irradiation. Symposium on Irradiation and Thyroid Cancer. University of Connecticut Health Center, Farmington, Connecticut. September 20, 1977.
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12. Perfusion and Ventilation Lung Scans. Basic Science Lecture Program. Chicago Thoracic Society. October 31, 1979.
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21. Can Regional Blood Flow be Estimated ?. Brook Lodge Conference. Kalamazoo, Michigan. October 11, 1982.
22. Thyroid Scans, Ultrasound, and Uptake Studies. Seventh Annual American Thyroid Association Workshop on Thyroid Disease. Chicago, Illinois. October 28-29, 1982.
23. Thyrotoxicosis- Radioactive Iodine Therapy. Seventh Annual American Thyroid Association Workshop on Thyroid Disease. Chicago, Illinois. October 28-29, 1982.
24. What's New in Thyroid Disease. Surgical Continuing Medical Education Program. Ingalls Memorial Hospital. Chicago, Illinois. February 15, 1983.
25. Computers in Nuclear Medicine. Michigan Association of Osteopathic Radiologists, Michigan Center for Continuing Education. Pontiac, Michigan. September 21, 1983.
26. Special Nuclear Medicine Procedures in Oncology.
27. Technical Artifacts in Radionuclide Imaging. The Third Asia and Oceania Congress of Nuclear Medicine, Seoul, Korea. August 27-31, 1984.

Curriculum Vitae

NAME: SHAHROOZ SEPAHDARI, M.D.

ADDRESS: 4800 So. Chicago Beach Drive
Apt. 912-S
Chicago, IL 60615

PERSONAL: Born: Arak, Iran, November 2, 1945
Married: Yes
Children: Two
Permanent resident of The United States

EDUCATION: Jondishapur University, Ahwaz, Iran, (1964-1967)
Medical School: Tehran University, School of Medicine,
Iran, (1967-1971)

POST DOCTORAL: Internship: Englewood Hospital, Englewood, NJ.
(July 1974-June 1975)
Residency: General Surgery, Englewood Hospital,
Englewood, NJ, (July 1975 - June 1976)
Residency: Diagnostic Radiology, Presbyterian
University of Pennsylvania, Medical
Center, (July 1976 - June 1979)
Fellowship: Nuclear Medicine, The University of
Chicago, (July 1979 - June 1981)

PRESENT POSITION: Associate Radiologist, Department of Radiology
Mercy Hospital and Medical Center

BOARD Certifications: Board Certified in Diagnostic Radiology, American
Board of Radiology, June 1980
Certified in Radiology with special competency in
Nuclear medicine, June 1981
Eligible for American Board of Nuclear Medicine

LICENSURE: Licensed to practice medicine and surgery in the
states of: Illinois and Pennsylvania

FACULTY APPOINTMENT: Clinical Assistant Professor of Radiology, University
of Illinois College of Medicine at Chicago 1983-Present.
Assistant Professor of Radiology, University of Chicago
1981-1983

MEMBERSHIPS: Chicago Medical Society
American Medical Association
Illinois State Medical Society

PUBLICATIONS

1. Ryan J, Sepahdari S: Detection of Meckel's Diverticulum in an Infant by Tc-99m Sulfur Collid Scintigraphy. Clin Nuc Med, May 1981.
2. Osborne M, Ryan J, Sepahdari S, Kirchner P: Gallium-67 and Liver Scanning in Cancer of the Esophagus. J Nuc Med, June, 1981, Abstract.
3. Duda E, Sepahdari S: National Study for Contrast Media Reaction. Participant in the study. Originated from University of California at San Diego. 1982 - 1983.
4. Chan HP, Frank PH, Doi K, Lida N, Sepahdari S: Physical and Clinical Evaluation of Ultra-high Strip-Density Grids in Mammography. Scientific Exhibit November 1983, RSNA.
5. Chan HP, Sepahdari S, Doi K: Physical and Clinical Evaluation of Ultra-high Strip-density Grids in Mammography. Abstracts RSNA 1983.
6. MacMahon H, Viborny K, Sepahdari S, Ryan J: Ga accumulation in the stomach, a frequent incidental finding. Clinical Nuc Med in press.
7. Comparison of Bone Agent and Ga-67 in Primary Malignant and Benign Bone Tumors. Abstract J. Nuc Med. Will present on June 1985.

LECTURES:

Guest Speaker - Cook County Graduate School of Medicine.

- A. Radiological Evaluation of Bladder & Urethra - Dec. 1981.

Guest Speaker - University of Illinois School of Dentistry.

- A. CT Scanning of Salivary Glands - Jan. 1985.
B. Radiology of Facial Trauma - Jan. 1985.

AWARD:

Mark R. Tetelman Memorial Award for Outstanding Teaching - June 1982.

CONTROL NO. 80129

ERNEST BYROM

1574 Asbury Avenue, Evanston, Illinois 60201

Phone (312) 791-8194 (work); (312) 866-9469 (home)

Born, March 31st 1948, Blackburn, England. Citizen of United Kingdom.
Permanent Resident status, USA. Married.

Education: 1969-1975 Northwestern University, Evanston, Illinois
 Ph.D. 1975 (Physics)
 1966-1969 Oxford University, Oxford, England
 B.A. 1969 (Physics)

Positions: 1981-present. Biophysicist, Division of Nuclear Medicine,
 Michael Reese Hospital and Medical Center, Chicago, Illinois
 1977-1981 Assistant Professor, Section of Nuclear Medicine,
 University of Illinois, Chicago, Illinois
 1975-1977 Instructor, ibid.
 1975 Visiting Scholar, Physics Department, Northwestern
 University, Evanston, Illinois
 1969-1975 Research Assistant, ibid.
 1966-1969 McKinnon Scholarship, Magdalen College, Oxford

Experience: My principal work, both at University of Illinois and at Michael Reese Hospital, has been the development and programming of computer procedures in Nuclear Medicine. Also, supervising and training technical staff in clinical and research use of the computer; teaching physics to residents and to medical and technical students; acceptance testing of gamma cameras and computer systems. At Michael Reese Hospital, I am Co-Radiation Safety Officer.

Committees: Human Use Radioisotope Committee / Radioactive Drug
 Research Committee, Michael Reese Hospital.
 Nuclear Medicine Technology Advisory Committee, Triton
 College, River Grove, Illinois.

Membership: Society of Nuclear Medicine

Publications

1. Covalency, spin densities and core electron binding energy splittings in rare earth ion complexes
E. Byrom, D. E. Ellis and A. J. Freeman
AIP Conference Proceedings 10 1294 (1973)
2. Covalency effects on tetrahedral and octahedral Fe^{3+} sites in YIG: charge and spin densities and neutron form factors
E. Byrom, A. J. Freeman and D. E. Ellis
AIP Conference Proceedings 24 209 (1975)
3. Electronic structure and properties of EuO and EuS in the molecular cluster approximation
E. Byrom, D. E. Ellis and A. J. Freeman
Physical Review B 14 3558 (1976)
4. Molecular cluster studies of binary alloys: LiAl
D. E. Ellis, G. A. Benesh and E. Byrom
Physical Review B 16 3308 (1977)
5. Computer evaluation of the quality of different modalities of background subtraction during gamma camera kidney studies
D. G. Pavel and E. Byrom
CONF-770101, ERDA Technical Information Center, p67 (1977)
6. Self-consistent embedded-cluster model for magnetic impurities: β' -NiAl
D. E. Ellis, G. A. Benesh and E. Byrom
Journal of Applied Physics 49 1543 (1978)
7. Multifaceted evaluation of left ventricular function by the first transit technique using Anger type cameras and an optimized protocol: Correlation with biplane roentgen angiography
D. G. Pavel, E. Byrom, B. Ayres, R. J. Pietras, J. A. Bianco and C. Kanakis Jr.
Nuclear Cardiology: Selected Computer Aspects, Society of Nuclear Medicine, p129 (1978)
8. Improved computer definition of regions of interest by using a double-cursor method
E. Byrom and D. G. Pavel
Journal of Nuclear Medicine 19 959 (1978)
9. Self-consistent embedded-cluster model for magnetic impurities: Fe, Co, and Ni in β' -NiAl
D. E. Ellis, G. A. Benesh and E. Byrom
Physical Review B 20 1198 (1979)
10. Radionuclide regurgitant index - value and limitations
W. Lam, D. Pavel, E. Byrom, A. Sheikh, D. Best and K. Rosen
American Journal of Cardiology 47 292 (1981)

11. Assessment of left ventricular function by radionuclide angiography during induced supraventricular tachycardia
S. Swiryn, D. Pavel, E. Byrom, C. Wyndham, R. Pietras,
R. Bauernfeind and K. Rosen
American Journal of Cardiology 47 555 (1981)
12. Phase images of gated cardiac studies: a standardized evaluation procedure
E. Byrom, D. Pavel, S. Swiryn and C. Meyer-Pavel
Functional Mapping of Organ Systems and other computer topics,
P. Esser (ed.), Society of Nuclear Medicine p129 (1981)
13. Tricuspid insufficiency detected by equilibrium gated radionuclide study
B. Handler, D. Pavel, W. Lam, E. Byrom, S. Swiryn, R. Pietras and K. Rosen
Clinical Nuclear Medicine 6 485 (1981)
14. Normal and abnormal electrical activation of the heart: imaging patterns obtained by phase analysis of equilibrium cardiac studies
D. Pavel, E. Byrom, S. Swiryn, C. Meyer-Pavel and K. Rosen
Medical Radionuclide Imaging 1980, International Atomic Energy Agency, VII p253 (1981)
15. Sequential regional phase mapping of radionuclide gated biventriculograms in patients with left bundle branch block
S. Swiryn, D. Pavel, E. Byrom, D. Witham, C. Meyer-Pavel, C. Wyndham, B. Handler and K. Rosen
American Heart Journal 102 1000 (1981)
16. Sequential regional phase mapping of radionuclide gated biventriculograms in patients with sustained ventricular tachycardia: close correlation with electrophysiologic characteristics
S. Swiryn, D. Pavel, E. Byrom, R. Bauernfeind, B. Strasberg, E. Palileo, W. Lam, C. Wyndham and K. Rosen
American Heart Journal 103 319 (1982)
17. Equilibrium radionuclide gated angiography in patients with tricuspid regurgitation
B. Handler, D. Pavel, R. Pietras, S. Swiryn, E. Byrom, W. Lam and K. Rosen
American Journal of Cardiology 51 305 (1983)
18. Detection and quantification of regional wall motion abnormalities using phase analysis of equilibrium gated cardiac studies
D. Pavel, E. Byrom, W. Lam, C. Meyer-Pavel, S. Swiryn and R. Pietras
Clinical Nuclear Medicine 8 315 (1983)

CURRICULUM VITAE

THOMAS M. ANDERSON, M.D.

Date of birth: July 15, 1944
Place of birth: Philadelphia, Pennsylvania
Marital status: Married, three children

Education: Princeton University, Princeton, New Jersey
1966 - A.B., cum laude
Harvard Medical School, Boston, Massachusetts
1970 - M.D.

Professional Training

Internship: Department of Radiology, The University of Chicago,
Chicago, Illinois, 1970-71

Residency: Department of Radiology, The University of Chicago,
Chicago, Illinois, 1971-73

Chief Resident-Radiology, 1973-74

Traineeship: NIH Training Grant, 1971-1975

Consultant, International Atomic Energy Agency:
Vienna, Austria, 1977-78

Certification: Diplomate, National Board of Medical Examiners, 1970

Diplomate, American Board of Radiology (Diagnostic
Radiology), 1974

Diplomate, American Board of Nuclear Medicine, 1975

Military Service: Lieutenant Commander, Medical Corps, US Naval Reserve,
on active duty 1975-1977 at Naval Regional Medical
Center, Great Lakes, Illinois, and Chief of Radiology
1976-1977

Academic
Appointments: Instructor, Diagnostic Radiology, The University
of Chicago, 1974-75

Assistant Professor, Diagnostic Radiology, The University
of Chicago, 1978 to present

Licensure: Illinois, 1971
California, 1974

Professional
Societies: Association of University Radiologists
Radiologic Society of North America
American Medical Association
International Skeletal Society

Hospital

Appointments:

Chairman and Medical Director
Diagnostic Radiology
Mercy Hospital and Medical Center
Chicago, Illinois
1983-present

Associate Radiologist
Michael Reese Medical Center
Chicago, Illinois
1982-present

Associate, Department of Orthopedic Surgery
Michael Reese Medical Center
Chicago, Illinois
1982-present

Program Coordinator, Medical Student and
Resident Teaching, Diagnostic Radiology
University of Chicago Medical Center
1978-1982

Radiology Faculty Secretary
University of Chicago Medical Center
1978-1982

References:

Bertram Levin, M.D.
Professor and Chairman
Dept. of Radiology
Michael Reese Hospital
29th St. & Ellis Avenue
Chicago, Illinois 60616

John J. Fennessev, B.M.
Professor and Chairman
Radiology Department
University of Chicago Medical Center
950 East 59th St.
Chicago, Illinois 60637

Robert D. Moseley Jr., M.D.
Professor and Chairman
Radiology Dept.
University of New Mexico
School of Medicine
Albuquerque, New Mexico 87131

CONTROL NO. 80129

BIBLIOGRAPHY

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- 2) Tetalman JR, Oppenheim BE, Anderson TM, Hoffer PB, Beck RN, Gottschalk A, et al.: Evaluation of a New Low-Energy Diverging Collimator. (Presented at 19th Annual Meeting, Society of Nuclear Medicine, Boston, Massachusetts, July, 1972). J. Nucl. Med. 13(6): 471, 1972 (Abstract).
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- 5) Anderson TM, Mintzer RA, Hoffer PB, Lusted LB, et al.: Nuclear Image Transmission by Picturephone: Evaluation by ROC Curve Method. (Presented at Association of University Radiologists Meeting, 1973).
- 6) Tetalman MR, Hoffer PB, Stelling CB, Anderson TM: The efficacy of emergency lung scans. (Presented at 20th Annual Meeting, Society of Nuclear Medicine, Miami, Florida, June 1973).
- 7) Anderson TM, Mintzer RA, Hoffer PB, Lusted LB, Smith VC, Pokorny J: Nuclear Image Transmission by Picturephone: Evaluation by ROC Curve Method. Invest. Radiol. 8(4): 244-250, 1973.
- 8) Mintzer RA, Anderson TM, Chiles JT, Grunow WA, Fennessy JJ: The significance of localized bronchiectasis adjacent to pulmonary coin lesions. Chest 64(2): 155-157, 1973.
- 9) Genant HK, Singh M, Anderson TM, et al.: In vivo determination of skeletal uptake of bone-seeking radiopharmaceuticals. (Presented at 59th Scientific Assembly and Annual Meeting, Radiological Society of North America, Chicago, Illinois, Nov. 1973).
- 10) Anderson TM: The role of bronchography in transcatheter bronchial brushing to evaluate pulmonary disease. (Presented at 60th Scientific Assembly and Annual Meeting, Radiological Society of North America, Chicago, Illinois, Dec. 1974).
- 11) Anderson TM, Doris PE, Beckerman C, et al.: Uptake of bone-seeking agents by liver metastases from colon carcinoma: scintigraphic, radiologic, metabolic and histologic correlation. (Presented at 61st Scientific Assembly and Annual Meeting, Radiological Society of North America, Chicago, Illinois, Nov. 1973).

- 12) Anderson TM, Mall JC, Hoffer PB, Tetelman MR, Hendrix RW: Efficacy of emergency radionuclide perfusion lung studies. Radiology 120: 125-130, 1976.
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- 15) Doi K, Frank PH, Loo LN, Anderson TM: Film Screen Analysis. Exhibited at 65th Scientific Assembly and Annual Meeting, Radiological Society of North America, Atlanta, Georgia, Nov. 1979.
- 16) Anderson TM, Courtney JV, Kirchner PT, Kieran AM, Bidani N: Diagnostic Features of Malignant Lymphoma in Bone. Exhibited at 80th Annual American Roentgen Ray Society Meeting, Las Vegas, Nevada, April, 1980.
- 17) Anderson TM, Courtney JV: Radiologic Aspects of Sickle Cell Disease. Exhibited at 80th Annual American Roentgen Ray Society Meeting, Las Vegas, Nevada, April, 1980.
- 18) Anderson TM, Manaster BJ: Tumoral Calcinosis. Skeletal Radiology 8: 123-125, 1982.
- 19) Doi K, Loo LN, Anderson TM, Frank PH: Effect of Crossover Exposure on Radiographic Image Quality of Screen-Film Systems. Radiology 139: 707-714, 1981.
- 20) Anderson TM, Kirchner PT, Ryan JW, Robinson M, Stulberg SD: The Natural History of the Bone Scan Following Total Knee Replacement Surgery. Presented at 66th Scientific Assembly and Annual Meeting, Radiological Society of North America, Dallas, Texas, Nov. 1980.

Also presented at 48th Annual Meeting of the American Academy of Orthopedic Surgeons, 1981.
- 21) Hendrix RW, Anderson TM: Arthrography and Radiologic Evaluation of Prosthetic Joints. Published in Radiologic Clinics of North America, June 1981.
- 22) Anderson TM, Sepahdari S: Gallium Imaging in Paget's Disease (submitted for publication).
- 23) Anderson TM, Post M: Disseminated Skeletal Metastases of Mixed Salivary Gland Tumor (manuscript in preparation).
- 24) Anderson TM, Simon M, Metz CE: Prospective Evaluation of Soft Tissue Tumors by Clinical, Thermographic and Zeropradiographic Examinations. (work in progress).

APPENDIX C
INSTRUMENTATION

1. Survey meters

- a. Manufacturer's name: LUDLUM
 Manufacturer's model number: 14C WITH THIN WALL GM PROBE
 Number of instruments available: 1
 Minimum range: 0 mR/hr to 0.2 mR/hr
 Maximum range: 0 mR/hr to 2000 mR/hr
- b. Manufacturer's name: _____
 Manufacturer's model number: _____
 Number of instruments available: _____
 Minimum range: _____ mR/hr to _____ mR/hr
 Maximum range: _____ mR/hr to _____ mR/hr

2. Dose calibrator

Manufacturer's name: CAPINTEC
 Manufacturer's model number: CRC-7
 Number of instruments available: 1

3. Instruments used for diagnostic procedures

| Type of Instrument | Manufacturer's Name | Model No. |
|--------------------|---------------------|----------------|
| GAMMA CAMERA | GENERAL ELECTRIC | GE 415TA SPECT |
| COMPUTER | GENERAL ELECTRIC | GE STAR |

4. Other (e.g., liquid scintillation counter, area monitor, velometer)

| | | |
|------------------------|---------|---------|
| THYROID UPTAKE UNIT | LUDLUM | 187-261 |
| CARDIAC STRESS MONITOR | QUINION | Q3000 |
| DEFIBRILLATOR | | 617A |

Item 10

Calibration of Instruments

Appendix D procedures will be followed for survey instruments, as stated in Regulatory Guide 10.8, Revision 1, October, 1980.

Appendix D procedures will be followed for dose calibrators, as stated in Regulatory Guide 10.8, Revision 1, October, 1980.

Item 10
September 1, 1985

CONTROL NO. 80129

CALIBRATION OF SURVEY INSTRUMENTS

Check appropriate items.

- ☒ 1. Survey instruments will be calibrated at least annually and following repair.
- ☒ 2. Calibration will be performed at two points on each scale used for radiation protection purposes, i.e., at least up to 1 R/hr.

The two points will be approximately 1/3 and 2/3 of full scale. A survey instrument may be considered properly calibrated when the instrument readings are within ± 10 percent of the calculated or known values for each point checked. Readings within ± 20 percent are considered acceptable if a calibration chart, graph, or response factor is prepared, attached to the instrument, and used to interpret readings to within ± 10 percent. Also, when higher scales are not checked or calibrated, an appropriate precautionary note will be posted on the instrument.

3. Survey instruments will be calibrated

- ☒ a. By the manufacturer
- ☐ b. At the licensee's facility

- (1) Calibration source

Manufacturer's name _____
Model no. _____
Activity in millicuries _____
or
Exposure rate at a specified distance _____
Accuracy _____
Traceability to primary standard _____

- ☐ (2) The calibration procedures in Section I of Appendix D will be used
or

- ☐ (3) The step-by-step procedures, including radiation safety procedures, are attached.

- ☒ c. By a consultant or outside firm

- (1) Name HEALTH PHYSICS

- (2) Location 3304 COMMERCIAL AVE. NORTHBROOK, ILL

- (3) Procedures and sources

☒ have been approved by NRC and are on file in License No. 12-09160-01

☐ have been approved by an Agreement State: a copy of the Agreement State license, the procedures, and a description of the sources are attached, and the consultant's report will contain the information on

☐ the attached "Certificate of Instrument Calibration."
☐ the consultant's reporting form as attached.

☐ are described in the attachment, and the consultant's report will contain the information on

☐ the attached "Certificate of Instrument Calibration."
☐ the consultant's reporting form as attached.

Item 10

SEPTEMBER 1, 1985

CALIBRATION OF DOSE CALIBRATOR

A. Sources Used for Linearity Test

(Check as appropriate)

_____ First elution from new Mo-99/Tc-99m generator

or

X Other* (specify) Tc-99m 50 mCi or Greater

B. Sources Used for Instrument Accuracy and Constancy Tests

| Radionuclide | Suggested Activity (mCi) | Activity (mCi) | Accuracy |
|--------------|--------------------------|----------------|------------------------|
| Co-57 | 3-5 | <u>5.0</u> | <u>+ 5%</u> |
| Ba-133 | 0.1-0.5 | <u>0.250</u> | <u>+ 5%</u> AT 99% |
| Cs-137 | 0.1-0.2 | <u>0.200</u> | <u>+ 5%</u> confidence |
| Ra-226 | 1-2 | _____ | _____ level |
| _____ | _____ | _____ | _____ |

C. X The procedures described in Section 2 of Appendix D will be used for calibration of the dose calibrator

or

_____ Equivalent procedures are attached.

*For licensees who are not authorized for Mo-99/Tc-99m generators, activity must be equivalent to the highest activity used.

ITEM 10

SEPTEMBER 1, 1985

ITEM 11

FACILITIES AND EQUIPMENT

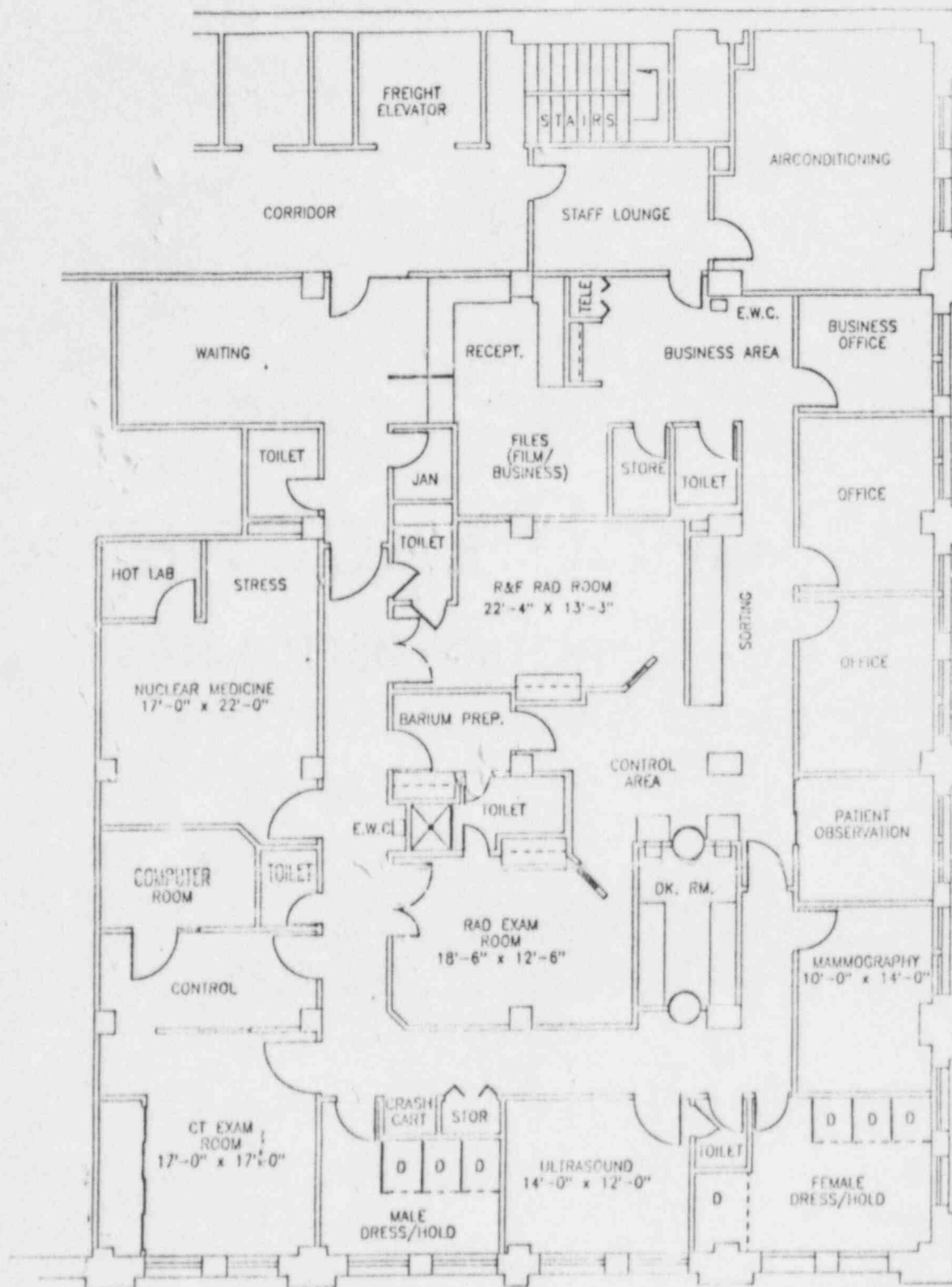
The offices of Advance Radiological Services, Inc., are located at 111 Wabash Avenue in Chicago, Illinois.

Surrounding the nuclear medicine facility is the computer room and hallway. The hot lab is on the outside wall of the facility.

The nuclear medicine facility will be in a 17 foot by 20 foot room. The room will house the gamma camera, console and stress room. The small room located at the back of the scanning room will be designated as the hot lab. Here is where the radiopharmaceuticals will be received, opened, stored, assayed, and administered. Space has also been provided for short term waste storage, prior to returning it to Syncor, Int.

The entrance to the restricted area from the hallway is secured by a door with a keyed lock. The entrance to the hot lab is also secured by a door with a keyed lock.

The nuclear medicine facility is equipped as follows: A GE 415TA SPECT gamma camera will be used to perform the scans. A GE STAR computer will be used to quantitate the studies. A Capintec dose calibrator will be used to assay each dose prior to administration. A Ludlum, Model 14 Beta-Gamma survey meter with a Thin Wall GM probe will be used to survey areas for contamination and to check hands and feet prior to leaving the nuclear medicine facility. In the hot lab will be one or more lead lined metal boxes, lined with plastic bags to be used for storage of hot trash, swabs, needles, etc., before returning the waste to Syncor Int.. Other radiation safety equipment which will be available are syringe shields, tongs for handling, rubber gloves, and absorbant paper backed with plastic. Personnel monitoring devices such as film badges and TLD dosimeters for fingers will also be utilized.



METROPOLITAN DIAGNOSTIC IMAGING, LLC

CONTROL NO. 801129 NORTH WABASH AVENUE, CHICAGO, ILLINOIS

Item 12

Personnel Training Program

Training will be provided by Steven Pinsky, M.D. or a consultant (Nuclear Pharmacy, Inc.) in radiation safety and provided to all personnel who work with, or in the vicinity of radioactive materials. This training will be in the form of lectures and /or demonstrations, lasting from 30 - 60 minutes, and will be given to employees prior to their starting work with, or in the vicinity of radioactive materials, and thereafter on an annual basis, or after a significant change in the employee's duties, or the regulation or terms of the NRC license.

The subject matter of this training will be as required by 10CFR Part 19 and will include:

- A. All terms of the license pertinent to radiation safety.
- B. Areas where radioactive material is used or stored.
- C. Potential hazards associated with radioactive material.
- D. Radiological safety procedures appropriate to their respective duties.
- E. Pertinent NRC regulations.
- F. Rules and regulations of the license.
- G. Obligation to report unsafe conditions to the radiation safety officer.
- H. Appropriate response to emergencies or unsafe conditions.
- I. Right to be informed of their radiation exposure and bio-assay results.
- J. Locations where the licensee has posted or made available notices, copies of pertinent regulations, and copies of pertinent licenses and license conditions (including applications and applicable correspondence,) as required by 10CFR part 19.

Item 12
September 1, 1985

Item 13

Procedures for Ordering and Receiving
Radioactive Materials.

1. Radioactive materials ordered will be in the precalibrated form, and as in Groups I,II, of Schedule C, Part C.26(c) of the Rules and Regulations Manual. Orders will be placed only with manufacturer's or radiopharmacies licensed to disperse or supply radioactive materials.
2. Only the supervisory nuclear medicine technologist or individuals authorized by Dr. Pinsky, will place orders for radioactive materials. These individuals will be responsible for ensuring that materials requested conform to procedure 1. above and do not exceed possession limits.
3. A system for ordering and receiving radioactive materials will be established and maintained. This system will consist of written records of the materials ordered, indicating the isotope, compound activity levels, and the manufacturer or the radiopharmacy with which the order was placed. These records will be referenced when opening or storing radioactive materials.
4. Whenever possible, all shipments will be scheduled such that they are received during normal working hours. Couriers will be instructed to deliver packages directly to the nuclear medicine hot lab.
5. Should circumstances arise such that receipt of radioactive shipments, cannot be arranged during normal working hours, the courier will be given a key and instructed to place shipment directly in the nuclear medicine hot lab and relock the door when finished. Since it is our intend at the present time to use the services of Nuclear Pharmacy, Inc., this alternative is quite feasible as there would be only one courier involved for all shipments.
6. A memo will be issued to all personnel prior to receiving our first shipment. A sample of the memo follows.

Item 13
September 1, 1985

TO: All Personnel

FROM: Steven Pinsky, M.D.

RE: Receipt of packages containing radioactive materials

DATE:

Whenever a courier arrives at this office to deliver a shipment of radioactive material, he is to be directed to deliver the package directly to the nuclear medicine hot lab. If the nuclear medicine technologist is not present, make sure that the room is relocked, and notify him/her that a shipment has been received.

If the package is wet or appears to be damaged, immediately contact the radiation safety officer. Ask the courier to remain in the nuclear medicine department until it can be determined that neither he nor the delivery vehicle is contaminated.

Radiation Safety Officer:

Office Phone:

Home Phone:

Item 13
September 1, 1985

Item 14

Procedures for Safely Opening Packages
Containing Radioactive Materials.

Appendix F procedures will be followed as outlined in
Regulatory Guide 10.8, Revision 1, October, 1980.

Item 14
September 1, 1985

CONTROL NO. 80129

Item 15

General Rules for the Safe Use of Radioactive Materials.

Appendix G rules will be followed, as outlined in Regulatory Guide 10.8, Revision 1, October, 1980.

Item 15
September 1, 1985

APPENDIX H
EMERGENCY PROCEDURES

Minor Spills

1. **NOTIFY:** Notify persons in the area that a spill has occurred.
2. **PREVENT THE SPREAD:** Cover the spill with absorbent paper.
3. **CLEAN UP:** Use disposable gloves and remote handling tongs. Carefully fold the absorbent paper and pad. Insert into a plastic bag and dispose of in the radioactive waste container. Also insert into the plastic bag all other contaminated materials such as disposable gloves.
4. **SURVEY:** With a low-range, thin-window G-M survey meter, check the area around the spill, hands, and clothing for contamination.
5. **REPORT:** Report incident to the Radiation Safety Officer.

Major Spills

1. **CLEAR THE AREA:** Notify all persons not involved in the spill to vacate the room.
2. **PREVENT THE SPREAD:** Cover the spill with absorbent pads, but do not attempt to clean it up. Confine the movement of all personnel potentially contaminated to prevent the spread.

3. **SHIELD THE SOURCE:** If possible, the spill should be shielded, but only if it can be done without further contamination or without significantly increasing your radiation exposure.
4. **CLOSE THE ROOM:** Leave the room and lock the door(s) to prevent entry.
5. **CALL FOR HELP:** Notify the Radiation Safety Officer immediately.
6. **PERSONNEL DECONTAMINATION:** Contaminated clothing should be removed and stored for further evaluation by the Radiation Safety Officer. If the spill is on the skin, flush thoroughly and then wash with mild soap and lukewarm water.

RADIATION SAFETY OFFICER: ERNEST BYROM
OFFICE PHONE: _____
HOME PHONE: _____

ALTERNATE NAMES AND TELEPHONE NUMBERS
DESIGNATED BY RADIATION SAFETY OFFICER:

* The appropriate information for your facility should be supplied in these blanks when posting these procedures or submitting them with the application.

ITEM 16
SEPTEMBER 1, 1985

CONTROL NO. 80129

Item 16

Emergency Procedures

Appendix H procedures will be followed as outlined in
Regulatory Guide 10.8, Revision 1, October, 1980.

Item 16
September 1, 1985

Item 1.

Area Survey Procedures

1. All elution, preparation, and injection areas will be surveyed daily with an appropriate, low-range survey meter and decontaminated if necessary. *
2. Laboratory areas where only small quantities of radioactive material are used (less than 200 uCi) will be surveyed monthly.
3. Waste storage areas and all other laboratory areas will be surveyed weekly.
4. The weekly and monthly surveys will consist of:
 - a. A measurement of radiation levels with a survey meter sufficiently sensitive to detect 0.1 mR/hr.
 - b. A series of wipe tests to measure contamination levels. The method for performing wipe tests will be sufficiently sensitive to detect 200 DPM per 100 cm² for the contaminant involved. If a thin window survey instrument is used to count the wipes, the detector wall thickness will be no greater than 30 mg/cm² and the detector beta shield will be open when counting the wipes. All wipes will be counted in an area of natural background.
5. A permanent record will be kept of all survey results, including negative results. The record will include:
 - a. Location, date, and identification of equipment used, including the serial number and pertinent counting efficiencies.
 - b. Name of the person conducting the survey.
 - c. Drawing of area surveyed, identifying relevant features such as active storage areas, active waste areas, etc.
 - d. Measured exposure rates, keyed to location on the drawing (point out rates that require corrective action.)
 - e. Detected contamination levels, keyed to locations on drawing.
 - f. Corrective action taken in the case of contamination or excessive exposure rates, reduced contamination levels or exposure rates after corrective action, and

any appropriate comments.

6. Areas will be cleaned if the contamination level exceeds two times the background level. The background reading will be measured in a low radiation area and will be measured prior to starting the surveys.
- * For daily surveys where no abnormal exposures are found, only the date, identification of the person performing the survey, and the survey results, will be recorded.

Item 17
September 1, 1985

APPENDIX J

WASTE DISPOSAL

Note: In view of the recent problems with shallow-land burial sites used by commercial waste disposal firms, NRC is encouraging its licensees to reduce the volume of wastes sent to these facilities. Important steps in volume reduction are to segregate radioactive from nonradioactive waste, to hold short-lived radioactive waste for decay in storage, and to release certain materials in the sanitary sewer in accordance with § 20.303 of 10 CFR Part 20.

1. Liquid waste will be disposed of (check as appropriate)
- ☒ In the sanitary sewer system in accordance with § 20.303 of 10 CFR Part 20.
- ☐ By commercial waste disposal service (see also Item 4 below).
- ☐ Disposed of by commercial waste disposal service (see also Item 4 below).
- ☐ Other (specify): _____

- ☒ Other (specify): RETURNED TO NUCLEAR PHARMACY, INC. 12-18044-01MD
3. Other solid waste will be (check as appropriate)

2. Mo-99/Tc-99m generators will be (check as appropriate)
- ☐ Returned to the manufacturer for disposal.
- ☐ Held for decay* until radiation levels, as measured in a low background area with a low-level survey meter and with all shielding removed, have reached background levels. All radiation labels will be removed or obliterated, and the generators will be disposed of as normal trash.**
- ☐ Held for decay* until radiation levels, as measured in a low background area with a low-level survey meter and with all shielding removed, have reached background levels. All radiation labels will be removed or obliterated, and the waste will be disposed of in normal trash.
- ☐ Disposed of by commercial waste disposal service (see also Item 4 below).
- ☒ Other (specify): RETURNED TO NUCLEAR PHARMACY, INC. 12-18044-01MD

* Be sure that waste storage areas were described in Item 11 and that they are surveyed periodically (Item 17).

** These generators may contain long-lived radioisotopic contaminants. Therefore, the generator columns will be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

4. The commercial waste disposal service used will be

(Name) _____ (City, State) _____

NRC/Agreement State License No. _____

ITEM 18

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Item 19

Therapeutic Use of Radiopharmaceuticals

I-131 Sodium Iodide will be used for the treatment of hyperthyroidism. The maximum possession limit is 25 mCi. I-131 sodium iodide will be ordered in precalibrated, capsule form only, as there is no fume hood available in the facility. In lieu of a detailed response to Item 19a of form 313m, procedures listed in Appendix K of Regulatory Guide 10.8, Revision 1, October, 1980, will be followed.

Other radiation safety policies related to the therapeutic use of I-131 sodium iodide as required in Item 19b of form 313m are as follows:

- A. All requests for I-131 therapy will be made in writing by the referring physician.
- B. Upon receipt of a written request, the appropriate amount of I-131 sodium iodide will be ordered in precalibrated, capsule form only.
- C. Upon receipt of the I-131 capsule, the packing slip and the container label will be checked to see if they agree in so far as isotope, activity, and chemical and physical form. This in turn will be verified against the written request for therapy.
- D. The dose will be assayed to assure that activity is within 10% of that ordered.
- E. The capsule(s) will then be administered as follows:
 - 1. Patient will be instructed to contact the clinic if vomiting should occur within 24 hours of administration and to flush the toilet 3 times after use for the next 48 hours. Patients will also be instructed, depending on the activity administered, to avoid prolonged close contact with relatives or friends who may be pregnant, or who are under the age of 18 years, for a period of time commensurate with the activity administered.
 - 2. After the procedure and precautions have been fully explained and the patient's questions fully answered, the patient will be instructed to use the bathroom.
 - 3. Wearing gloves and a labcoat and using tongs, the nuclear medicine physician or his/her designate, will assist the

patient in taking the capsule(s).

4. Having swallowed the capsule, the patient will be immediately dismissed.
5. The room or area in which the capsule was administered will be surveyed for any possible contamination, and the results recorded.
6. Whenever handling I-131 sodium iodide capsules, gloves, labcoats, finger and whole body badges will be worn, and remote handling devices such as tongs, will be used. In general, all steps will be taken that are necessary to ensure that radiation levels in unrestricted areas will be maintained less than limits specified in paragraph 20.105 (b) of 10CFR, Part 20, and to keep exposure to personnel in these areas ALARA.

ALARA Program

Appendix O procedures will be followed, as outlined in
Regulatory Guide 10.8, Revision 1, October, 1980.

September 1, 1985

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