| FORM NRC-313M 7-77 10 CFR 30 | U.S. NUCLEAR REGULATORY COMMISSION<br>APPLICATION FOR MATERIALS LICENSE – MEDICAL | |
|---|---|---|

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. Mail two copies 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 NRC Materials License. A NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee 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

ST. VINCENT HOSPITAL AND MEDICAL CENTER
2213 CHERRY STREET
TOLEDO, OHIO 43608
TELEPHONE NO.: AREA CODE (419) 259-4127

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

N/A

2. PERSON TO CONTACT REGARDING THIS APPLICATION

KATHRYN J. SCHROADER, M.S.
TELEPHONE NO.: AREA CODE (419) 259 4127

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

a. ☐ NEW LICENSE
b. ☐ AMENDMENT TO LICENSE NO.
c. ☑ RENEWAL OF LICENSE NO. 34-01216-03

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

* S.T. PINSKY, M.D.
* R.E. MYERS, M.D.
* R.M STANKEY, M.D.
E. Ho, M.D.

5. RADIATION PROTECTION OFFICER *(Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in Supplement A.)*

KATHRYN SCHROADER, M.S.
R.E. MYERS, M.D.

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

| RADIOACTIVE MATERIAL LISTED IN: | MARK ITEMS DESIRED "X" | MAXIMUM POSSESSION LIMITS (In millicuries) |
|---|---|---|
| 10 CFR 31.11 FOR IN-VITRO STUDIES | X | 10 mCi |
| 10 CFR 35.100, SCHEDULE A, GROUP I | X | AS NEEDED |
| 10 CFR 35.100, SCHEDULE A, GROUP II | X | AS NEEDED |
| 10 CFR 35.100, SCHEDULE A, GROUP III | X | 2 Ci OF EACH ISOTOPE LISTED |
| 10 CFR 35.100, SCHEDULE A, GROUP IV | X | AS NEEDED |
| 10 CFR 35.100, SCHEDULE A, GROUP V | X | AS NEEDED |
| 10 CFR 35.100, SCHEDULE A, GROUP VI | X | See Attachment A. |

| ITEM | MARK ITEMS DESIRED "X" | MAXIMUM POSSESSION LIMITS (In millicuries) |
|---|---|---|
| IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM AND CARDIAC DYSFUNCTION | X | |
| PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES | X | |
| PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS. | — | Oct 27 1978 |
| GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS. | — | |
| IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA | X | |
| XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES. | | |

6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a. *(Small sealed sources (up to 3m Ci) 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 |
|---|---|---|---|
| | | | |

License Fee Information
Pg. 2
~~on Reverse Side~~

COPIES SENT TO OFF. OF INSPECTION AND ENFORCEMENT

97160

8506100106 850517
REG3 LIC30
34-001216-03 PDR

FORM NRC-313M (7-77)

* These physicians currently have Supplements A and B on file with N.R.C. under present Byproducts License 34-01216-03.

## INFORMATION REQUIRED FOR ITEMS 7 THROUGH 23

Submit a detailed description of all the information requested in Items 7 through 23. Begin each item on a separate sheet. Identify the item number and the date of the application in the lower right hand corner of each page. Two copies of each appended sheet should be submitted with the application.

7. MEDICAL ISOTOPES COMMITTEE.
   a. Committee's Duties and Responsibilities.
   b. Meeting Frequency.
   c. Name and Specialty of Each Committee Member.
8. TRAINING AND EXPERIENCE.
   a. Authorized User(s). *(Each physician must complete Supplements A and B.)*
   b. Radiation Safety Officer. *(Complete Supplement A, if other than a physician already listed.)*
9. INSTRUMENTATION. *(List by manufacturer's name and model number.)*
   a. Survey Instruments.
   b. Dose Calibrator.
   c. Diagnostic Instruments.
   d. Other *(e.g. liquid scintillation counter, area monitor.)*
10. CALIBRATION OF INSTRUMENTS.
    a. Methods.
    b. Frequency.
    c. Standards (Radionuclide and Activity).
11. FACILITIES AND EQUIPMENT. *(Complete description and diagram.)*
12. PERSONNEL TRAINING PROGRAM AND FREQUENCY.
13. PROCEDURES FOR ORDERING AND RECEIPT OF RADIOACTIVE MATERIAL.
14. PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL.
15. GENERAL LABORATORY RULES FOR THE SAFE USE OF RADIOACTIVE MATERIALS.
16. EMERGENCY PROCEDURES, INCLUDING NAMES AND TELEPHONE NUMBERS OF PERSONNEL TO BE NOTIFIED.
17. AREA SURVEY PROCEDURES.
18. WASTE DISPOSAL PROCEDURES.
19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS.
    a. Procedures
    b. Precautions.
    c. Personnel Instructions.
20. THERAPEUTIC USE OF SEALED SOURCES.
    a. Procedures.
    b. Precautions.
    c. Personnel Instructions.
21. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES. *(e.g., xenon-133)*
22. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL IN ANIMALS.
23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.B.

RECEIVED BY LFMB
Date NOV 1 2 1978
Log Dorbl Ken
By Brown
Orig. To
Action Compl. 11/13/78

Applicant St. Vincent Hosp.
Check No. 000572 Amount $150 Fee Category 7B
Type of Fee Renewal
Date Check Rec'd NOV 2 1978
Received By Brown

FORM NRC-313M
(3-77) DRAFT



37160

## 24. PERSONNEL MONITORING DEVICES

| TYPE (Check appropriate box) | | SUPPLIER | EXCHANGE FREQUENCY |
|---|---|---|---|
| a. WHOLE BODY | ☑ FILM | R.S. LANDAUER, JR. AND CO. | BIMONTHLY |
| | ☐ TLD | | |
| | ☐ OTHER (Specify) | | |
| b. FINGER | ☐ FILM | | |
| | ☑ TLD | R.S. LANDAUER, JR. AND CO | BIMONTHLY |
| | ☐ OTHER (Specify) | | |

c. OTHER (Specify)

## 25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL

NAME OF HOSPITAL

MAILING ADDRESS

CITY | STATE | ZIP CODE

b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.

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, Part 30, 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)*

(1) LICENSE FEE CATEGORY:

(2) LICENSE FEE ENCLOSED: $

b. APPLICANT OR CERTIFYING OFFICIAL (Signature)
Kathryn J. Schroader M.S.

(1) NAME (Type or Print)
KATHRYN J. SCHROADER, M.S.

(2) TITLE
MEDICAL RADIATION PHYSICIST

c. DATE
10/27/78

FORM NRC 313R (7-77) DRAFT

FORM NRC-313M-SUPPLEMENT A
(7-77)
10 CFR 30

U.S. NUCLEAR REGULATORY COMMISSIO

# TRAINING AND EXPERIENCE
# AUTHORIZED USER OR RADIATION PROTECTION OFFICER

| 1. NAME OF AUTHORIZED USER OR RADIATION PROTECTION OFFICER | 2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE |
|---|---|
| | |

## 3. CERTIFICATION

| SPECIALITY BOARD<br>A | CATEGORY<br>B | MONTH AND YEAR CERTIFIED<br>C |
|---|---|---|
| | | |

## 4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES

| FIELD OF TRAINING<br>A | LOCATION AND DATE(S) OF TRAINING<br>B | TYPE AND LENGTH OF TRAINING | |
|---|---|---|---|
| | | LECTURE/ LABORATORY COURSES *(Hours)*<br>C | SUPERVISED LABORATORY EXPERIENCE *(Hours)*<br>D |
| a. RADIATION PHYSICS AND INSTRUMENTATION | | | |
| b. RADIATION PROTECTION | | | |
| c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY | | | |
| d. RADIATION BIOLOGY | | | |
| e. RADIOPHARMACEUTICAL CHEMISTRY | | | |

FORM NRC-313M-SUPPLEMENT B
(7-77)
10 CFR 30

U. S. NUCLEAR REGULATORY COMMISSION

# PRECEPTOR STATEMENT

*Supplement B must be completed by the applicant physician's preceptor. If more than one preceptor is necessary to document experience, obtain a separate statement from each.*

1. APPLICANT PHYSICIAN'S NAME AND ADDRESS

FULL NAME

STREET ADDRESS

CITY | STATE | ZIP CODE

**KEY TO COLUMN C**

**PERSONAL PARTICIPATION SHOULD CONSIST OF:**

1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage.

2-Collaboration in dose calibration and actual administration of dose to the patient including calculation of the radiation dose, related measurements and plotting of data.

3-Adequate period of training to enable physician to manage radioactive patients and follow patients through diagnosis and/or course of treatment.

2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

| ISOTOPE<br>A | CONDITIONS DIAGNOSED OR TREATED<br>B | NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION<br>C | COMMENTS<br>*(Additional information or comments may be submitted in duplicate on separate sheets.)*<br>D |
|---|---|---|---|
| I-131 or I-125 | DIAGNOSIS OF THYROID FUNCTION | | |
| | DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME | | |
| | LIVER FUNCTION STUDIES | | |
| | FAT ABSORPTION STUDIES | | |
| | KIDNEY FUNCTION STUDIES | | |
| | IN VITRO STUDIES | | |
| OTHER | | | |
| I-125 | DETECTION OF THROMBOSIS | | |
| I-131 | THYROID IMAGING | | |
| P-32 | EYE TUMOR LOCALIZATION | | |
| Se-75 | PANCREAS IMAGING | | |
| Yb-169 | CISTERNOGRAPHY | | |
| Xe-133 | BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES | | |
| OTHER | | | |
| Tc-99m | BRAIN IMAGING | | |
| | CARDIAC IMAGING | | |
| | THYROID IMAGING | | |
| | SALIVARY GLAND IMAGING | | |
| | BLOOD POOL IMAGING | | |
| | PLACENTA LOCALIZATION | | |
| | LIVER AND SPLEEN IMAGING | | |
| | LUNG IMAGING | | |
| | BONE IMAGING | | |
| OTHER | | | |

## PRECEPTOR STATEMENT *(Continued)*

### 2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN *(Continued)*

| ISOTOPE<br>A | CONDITIONS DIAGNOSED OR TREATED<br>B | NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION<br>C | COMMENTS<br>*(Additional information or comments may be submitted in duplicate on separate sheets.)*<br>D |
|---|---|---|---|
| P-32 *(Soluble)* | TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES | | |
| P-32 *(Colloidal)* | INTRACAVITARY TREATMENT | | |
| I-131 | TREATMENT OF THYROID CARCINOMA | | |
| | TREATMENT OF HYPERTHYROIDISM AND CARDIAC CONDITION | | |
| Au-198 | INTRACAVITARY TREATMENT | | |
| Co-60 or Cs-137 | INTERSTITIAL TREATMENT | | |
| | INTRACAVITARY TREATMENT | | |
| I-125 or Ir-192 | INTERSTITIAL TREATMENT | | |
| Co-60 or Cs-137 | TELETHERAPY TREATMENT | | |
| Sr-90 | TREATMENT OF EYE DISEASE | | |
| | RADIOPHARMACEUTICAL PREPARATION | | |
| Mo-99/ Tc-99m | GENERATOR | | |
| Sn-113/ In-113m | GENERATOR | | |
| Tc-99m | REAGENT KITS | | |
| Other | | | |

### 3. DATES AND TOTAL NUMBER OF HOURS RECEIVED IN CLINICAL RADIOISOTOPE TRAINING

### 4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:

a. NAME OF SUPERVISOR

b. NAME OF INSTITUTION

c. MAILING ADDRESS

d. CITY

5. MATERIALS LICENSE NUMBER(S)

6. PRECEPTOR'S SIGNATURE

7. PRECEPTOR'S NAME *(Please type or print)*

8. DATE

FORM NRC-313M-SUPPLEMENT B
(7-77)

## PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on Form NRC-313M. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).

2. **PRINCIPAL PURPOSE(S)** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30-36 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.

3. **ROUTINE USES** The information may be used: (a) to provide records to State health departments for their information and use; and (b) to provide information to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for a NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you. A copy of the license issued will routinely be placed in the NRC's Public Document Room, 1717 H Street, N.W., Washington, D.C.

4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed.

5. **SYSTEM MANAGER(S) AND ADDRESS** Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

97160

ATTACHMENT A

| NUCLIDE | MAXIMUM POSSESSION LIMIT |
|---|---|
| Americium 241 Sealed Source | 1000 mCi |
| Cesium 137 Sealed Sources | 1000 mCi |
| Cobalt 60 Sealed Sources | 1000 mCi |
| Gold 198 Seeds | 1000 mCi |
| Iodine 125 (Linear Sources) | 1000 mCi |
| Strontium 90 | 1000 mCi |
| Iodine 125 (Seeds) | 1000 mCi |
| Iridium 192 | 1000 mCi |

ATTACHMENT B

Item 7. MEDICAL ISOTOPES COMMITTEE

a. Committee's Duties and Responsibilities:

1. See Attachment B-1

b. Meeting Frequency:

1. At least quarterly

c. Name and Specialty of Each committee Member:

1. See Attachment B-2

ATTACHMENT B-1

# APPENDIX B

## MEDICAL ISOTOPES COMMITTEE

Responsibility:

The Committee is responsible for:

1. Ensuring that all individuals who work with or in the vicinity of radioactive material have sufficient training and experience to enable them to perform their duties safely and in accordance with NRC regulations and the conditions of the license.

2. Ensuring that all use of radioactive material is conducted in a safe manner and in accordance with NRC regulations and the conditions of the license.

Duties:

The Committee shall:

1. Be familiar with all pertinent NRC regulations, the terms of the license, and information submitted in support of the request for the license and its amendments.

2. Review the training and experience of any individual who uses radioactive material (including physicians, technologists, physicists, and pharmacists) and determine that the qualifications are sufficient

to enable them to perform their duties safely and in accordance with NRC regulations and the conditions of the license.

3. Establish a program to ensure that all individuals whose duties may require them to work in the vicinity of radioactive material (e.g., nursing, security and housekeeping personnel) are properly instructed as required by Section 19.12, of 10 CFR Part 19.

4. Review and approve all requests for use of radioactive material within the institution.

5. Prescribe special conditions that will be required during a proposed use of radioactive material such as requirements for bioassays, physical examinations of users and special monitoring procedures.

6. Review the entire radiation safety program at least annually to determine that all activities are being conducted safely and in accordance with NRC regulations and the conditions of the license. The review shall include an examination of all records, reports from the radiation safety officer, results of NRC inspection, written safety procedures and management control system.

7. Recommend remedial action to correct any deficiencies identified in the radiation safety program.

8. Maintain written records of all committee meetings, actions, recommendations, and decisions.

9. Ensure that the byproduct material license is amended, when necessary, prior to any changes in facilities, equipment, policies, procedures, and personnel.

Meeting Frequency:

The medical isotopes committee shall meet as often as necessary to conduct its business, but not less than once in each calendar quarter.

ATTACHMENT B-4

# ISOTOPE COMMITTEE

CHAIRMAN

CHIEF OF NUCLEAR MEDICINE

(presently R.M.Stankey, M.D.)

---

| SURGERY | MEDICINE | RADIOLOGY | PHYSICIST | PATHOLOGY |
|---|---|---|---|---|
| CHAIRMAN | CHAIRMAN | CHAIRMAN | CHAIRMAN | CHAIRMAN |
| G.Stark, M.D. | R.K.Agarwal,M.D. | S.T.Pinsky,M.D. | Kathryn Schroader,MS | A.Golden,M.D. |

| SURGICAL ADVISORY | MEDICAL ADVISORY | RADIOLOGY ADVISORY | ADMINISTRATION | TECHNICAL |
|---|---|---|---|---|
| Theron Hopple,M.D. (Neurology) | Phillip Horowitz,M.D. (Cardiology) | R.E.Myers, M.D. | Mr.C. Kopecky | Audrey Chadwick,R.T. |
| James Gosman,M.D. (Orthopedics) | Richard Schafer,M.D. (Hematology) | R.W.Siders, M.D. | | |
| Peter Cardillo,M.D. (Cardiovascular) | SuPa Kang,M.D. (Gastroenterology) | P.M.Royen,M.D. | | |
| Thomas O'Grady,M.D. (Thoracic Surgery) | John Mareska,M.D. (Neurology) | S.E.Gordon, M.D. | RADIOPHARMACIST | RADIATION SAFETY OFFICERS |
| Frederick Bowdle,M.D. (O.B.Gynecology) | | M.F.Fadell, M.D. | Pharmatopes | Kathryn Schroader, MS |
| Hosea Payne,M.D. (Genito-Urinary) | | E. P. Ho, M.D. | | R.E.Myers,M.D. |

Item No. 7
11/1/77

ATTACHMENT C

Item 8. TRAINING AND EXPERIENCE

a. Authorized Users:
Physicians currently authorized under license number 34-0126-03:

S.T. Pinsky, M.D.
R.E. Myers, M.D.
R.M. Stankey, M.D.

Physicians requesting authorization under this license renewal/amendment:

E.P. Ho. M.D.

See Attachment C-1 and C-2

b. Two Radiation Safety Officers are appointed; R.E. Myers, M.D., physician
K.J. Schroader, M.S., physicist

See Attachment C-1 for Kathryn J. Schroader, M.S.

Radiation Safety Officer

NOTE: R.E. Myers, M.D., Radiaiton Safety Officer, currently listed on license number 34-01216-03

ATTACHMENT C-1

FORM NRC-313M-SUPPLEMENT A
(7-77)
10 CFR 30

U.S. NUCLEAR REGULATORY COMMISSIO

# TRAINING AND EXPERIENCE
## AUTHORIZED USER OR RADIATION PROTECTION OFFICER

| 1. NAME OF AUTHORIZED USER OR RADIATION PROTECTION OFFICER | 2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE |
|---|---|
| KATHRYN J. SCHROADER, M.S. | |

### 3. CERTIFICATION

| SPECIALITY BOARD A | CATEGORY B | MONTH AND YEAR CERTIFIED C |
|---|---|---|
| AMERICAN BOARD OF RADIOLOGY | THERAPEUTIC RADIOLOGIC PHYSICS | WRITTEN EXAMINATION PASSED 6/78. ORAL EXAMINATION SCHEDULED DEC. 1978. |

### 4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES

| FIELD OF TRAINING A | LOCATION AND DATE(S) OF TRAINING B | TYPE AND LENGTH OF TRAINING: LECTURE/LABORATORY COURSES (Hours) C | TYPE AND LENGTH OF TRAINING: SUPERVISED LABORATORY EXPERIENCE (Hours) D |
|---|---|---|---|
| a. RADIATION PHYSICS AND INSTRUMENTATION | UNIVERSITY OF KENTUCKY 1972 - 1975 | 360 hrs. | 1000 hrs (includes brachytherapy experience) |
| b. RADIATION PROTECTION | UNIVERSITY OF KENTUCKY 1972 - 1975 | 50 | 100 |
| c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY | UNIVERSITY OF KENTUCKY 1972 - 1975 | 720 hrs. | — |
| d. RADIATION BIOLOGY | UNIVERSITY OF KENTUCKY 1972 - 1975 | 160 hrs | 720 hrs |
| e. RADIOPHARMACEUTICAL CHEMISTRY | UNIVERSITY OF KENTUCKY 1972 - 1975 | 100 hrs | 75 hrs |

ATTACHMENT C-2

FORM NRC-313M-SUPPLEMENT B
(7-77)
10 CFR 30

U. S. NUCLEAR REGULATORY COMMISSION

# PRECEPTOR STATEMENT

*Supplement B must be completed by the applicant physician's preceptor. If more than one preceptor is necessary to document experience, obtain a separate statement from each.*

1. APPLICANT PHYSICIAN'S NAME AND ADDRESS

FULL NAME: Edmund Ho m.d.

STREET ADDRESS: 421 Michigan St.

CITY: Toledo | STATE: Oh | ZIP CODE: 43624

**KEY TO COLUMN C**

**PERSONAL PARTICIPATION SHOULD CONSIST OF:**

1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage.

2-Collaboration in dose calibration and actual administration of dose to the patient including calculation of the radiation dose, related measurements and plotting of data.

3-Adequate period of training to enable physician to manage radioactive patients and follow patients through diagnosis and/or course of treatment.

2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

| ISOTOPE<br>A | CONDITIONS DIAGNOSED OR TREATED<br>B | NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION<br>C | COMMENTS<br>*(Additional information or comments may be submitted in duplicate on separate sheets.)*<br>D |
|---|---|---|---|
| I-131 or I-125 | DIAGNOSIS OF THYROID FUNCTION | | |
| | DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME | | |
| | LIVER FUNCTION STUDIES | | |
| | FAT ABSORPTION STUDIES | | |
| | KIDNEY FUNCTION STUDIES | | |
| | IN VITRO STUDIES | | |
| OTHER | | | |
| I-125 | DETECTION OF THROMBOSIS | | |
| I-131 | THYROID IMAGING | | |
| P-32 | EYE TUMOR LOCALIZATION | | |
| Se-75 | PANCREAS IMAGING | | |
| Yb-169 | CISTERNOGRAPHY | | |
| Xe-133 | BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES | | |
| OTHER | | | |
| Tc-99m | BRAIN IMAGING | | |
| | CARDIAC IMAGING | | |
| | THYROID IMAGING | | |
| | SALIVARY GLAND IMAGING | | |
| | BLOOD POOL IMAGING | | |
| | PLACENTA LOCALIZATION | | |
| | LIVER AND SPLEEN IMAGING | | |
| | LUNG IMAGING | | |
| | BONE IMAGING | | |
| OTHER | | | |

ATTACHMENT C-2

FORM NRC-313M-SUPPLEMENT A
(7-77)
10 CFR 30

U.S. NUCLEAR REGULATORY COMMISSIO

# TRAINING AND EXPERIENCE
## AUTHORIZED USER OR RADIATION PROTECTION OFFICER

| 1. NAME OF AUTHORIZED USER OR RADIATION PROTECTION OFFICER | 2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE |
|---|---|
| Edmund Ho M.D. | Ohio |

3. CERTIFICATION

| SPECIALITY BOARD A | CATEGORY B | MONTH AND YEAR CERTIFIED C |
|---|---|---|
| Am. Board of Radiology | Therapeutic Radiology | June 1977 |

4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES

| FIELD OF TRAINING A | LOCATION AND DATE(S) OF TRAINING B | TYPE AND LENGTH OF TRAINING | |
|---|---|---|---|
| | | LECTURE/ LABORATORY COURSES (Hours) C | SUPERVISED LABORATORY EXPERIENCE (Hours) D |
| a. RADIATION PHYSICS AND INSTRUMENTATION | University of Kentucky 1974 - 1977 | 36 hrs | 320 ~~80~~ hrs |
| b. RADIATION PROTECTION | University of Kentucky 1974 - 1977 | 36 hrs | 320 ~~80~~ hrs |
| c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY | University of Kentucky 1974 - 1977 | 36 hrs | 320 ~~80~~ hrs |
| d. RADIATION BIOLOGY | University of Kentucky 1974 - 1977 | 160 hrs | 480 hrs |
| e. RADIOPHARMACEUTICAL CHEMISTRY | University of Kentucky (974 - 1977 | 5 hrs | — |

ATTACHMENT C.2

## PRECEPTOR STATEMENT (Continued)

### 2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN (Continued)

| ISOTOPE A | CONDITIONS DIAGNOSED OR TREATED B | NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C | COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D |
|---|---|---|---|
| P-32 (Soluble) | TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES | | |
| P-32 (Colloidal) | INTRACAVITARY TREATMENT | | |
| I-131 | TREATMENT OF THYROID CARCINOMA | 2 | |
| | TREATMENT OF HYPERTHYROIDISM AND CARDIAC CONDITION | | |
| Au-198 | INTRACAVITARY TREATMENT | | |
| Co-60 or Cs-137 | INTERSTITIAL TREATMENT | 1 | |
| | INTRACAVITARY TREATMENT | 240 | |
| I-125 or Ir-192 | INTERSTITIAL TREATMENT | 10 | |
| Co-60 or Cs-137 | TELETHERAPY TREATMENT | 900 | |
| Sr-90 | TREATMENT OF EYE DISEASE | 30 | |
| | RADIOPHARMACEUTICAL PREPARATION | | |
| Mo-99/ Tc-99m | GENERATOR | | |
| Sn-113/ In-113m | GENERATOR | | |
| Tc-99m | REAGENT KITS | | |
| Other | | | |

### 3. DATES AND TOTAL NUMBER OF HOURS RECEIVED IN CLINICAL RADIOISOTOPE TRAINING

June 1974 - June 1977

560 hrs.

### 4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:

a. NAME OF SUPERVISOR

Yosh Maruyama, M.D.

b. NAME OF INSTITUTION

University of Kentucky Med. Center

c. MAILING ADDRESS

800 Rose St.

d. CITY

Lexington, KY 40506

### 5. MATERIALS LICENSE NUMBER(S)

NMD-49-22

### 6. PRECEPTOR'S SIGNATURE

### 7. PRECEPTOR'S NAME (Please type or print)

Yosh Maruyama, M.D.

Professor & Chairman, Director
Radiation Medicine

### 8. DATE

July 27, 1978

FORM NRC-313M-SUPPLEMENT B
(3-77)

Item 9. INSTRUMENTATION

a. Survey Instruments:

1. Manufacturer's Name: Victoreen
Manufacturer's Model Number 491-40
Number of Instruments Available: 1
Maximum Range 0mR/hr to 100 mR/hr
Minimum Range 0mR/hr to .1 mR/hr

2. Manufacturer's Name: Victoreen
Manufacturer's Model Number Thyac III
Number of Instruments Available: 1
Maximum Range 0mR/hr to 200 mR/hr
Minimum Range 0mR/hr to .2 mR/hr

3. Manufacturer's Name: Victoreen
Manufacturer's Model Number 471
Number of Instruments Available: 1
Maximum Range 0mR/hr to 300 R/hr
Minimum Range 0mR/hr to 1 mR/hr

b. Dose Calibrator

Manufacturer's Name: Nuclear Chicago
Manufacturer's Model Number Mediac
Number of Instruments Available: 2

c. Diagnostic Instruments

| TYPE OF INSTRUMENT | MANUFACTURER'S NAME | MODEL NUMBER |
|---|---|---|
| Gamma Camera | Searle | Pho Gamma IV |
| Gamma Camera | Searle (Nuclear Chicago) | Pho Gamma HP |
| Gamma Camera | General Electric | 46-400-321G1 |
| 5" Single Probe Color Scanner | Picker | 500/D |
| Dual Probe System for Counting | Picker | 600321 |
| Deep Well and Scaler | Picker | 600321 |
| Autogamma Camera | Nuclear Chicago | 1185 |
| Autogamma 300 | Searle | 1197 |
| Pho/Con | Searle | 1792 |

d. Other

"Frisker" Monitor Victoreen, Model 495
Maximum Range omR/hr to 500 KmR/hr
Minimum Range omR/hr to 500 mR/hr

ATTACHMENT E

Item 10 METHODS, FREQUENCIES AND STANDARDS USED FOR CALIBRATING INSTRUMENTS LISTED IN ITEM 9

a. Survey Instruments

Calibration performed by Test Equipment Distributors, Division of X-ray Industries, Incorporated, 18711 John R. Street, Detroit, Michigan 48203. Calibrations are performed there using a Co-60 standard source, with certification of calibration traceable to NBS. Two points on each scale is calibrated.

License Number of Test Equipment Distribution: 21-5472-1
Information concerning calibration procedures has been filed with the commission.

b. Dose Calibrator

Calibration of Dose Calibrator
Sources used for linearity test:
First election from new $Mo^{99}/Tc^{99m}$ generator

Sources used for Instrument Accuracy and Consistency Tests:

| | Radionuclide | Activity | Accuracy |
|---|---|---|---|
| | $^{57}Co$ | 303 μCi(4-9-76) | ± 5% |
| | $^{137}Cs$* | 207 μ (3-27-76) | ± 5% |
| Other: | $Co^{60}$ | 49 μCi | ± 5% |
| | $Cd^{153}$ | 8mCi (4-19-76) | ± 5% |
| | 226 - Ra | 15.9 μCi | ± 5% |

The procedures described in Appendix D section 2 will be used for calibration of the dose calibrator.
ALL SOURCES GUARANTEED BY MANUFACTURER TO BE TRACEABLE TO PRIMARY STANDARD.

* 5mCi $Cs^{137}$ source currently on order.

c. Diagnostic Instruments

Manufacturer's directions are followed for calibrator and maintenance of diagnostic instrumentation.

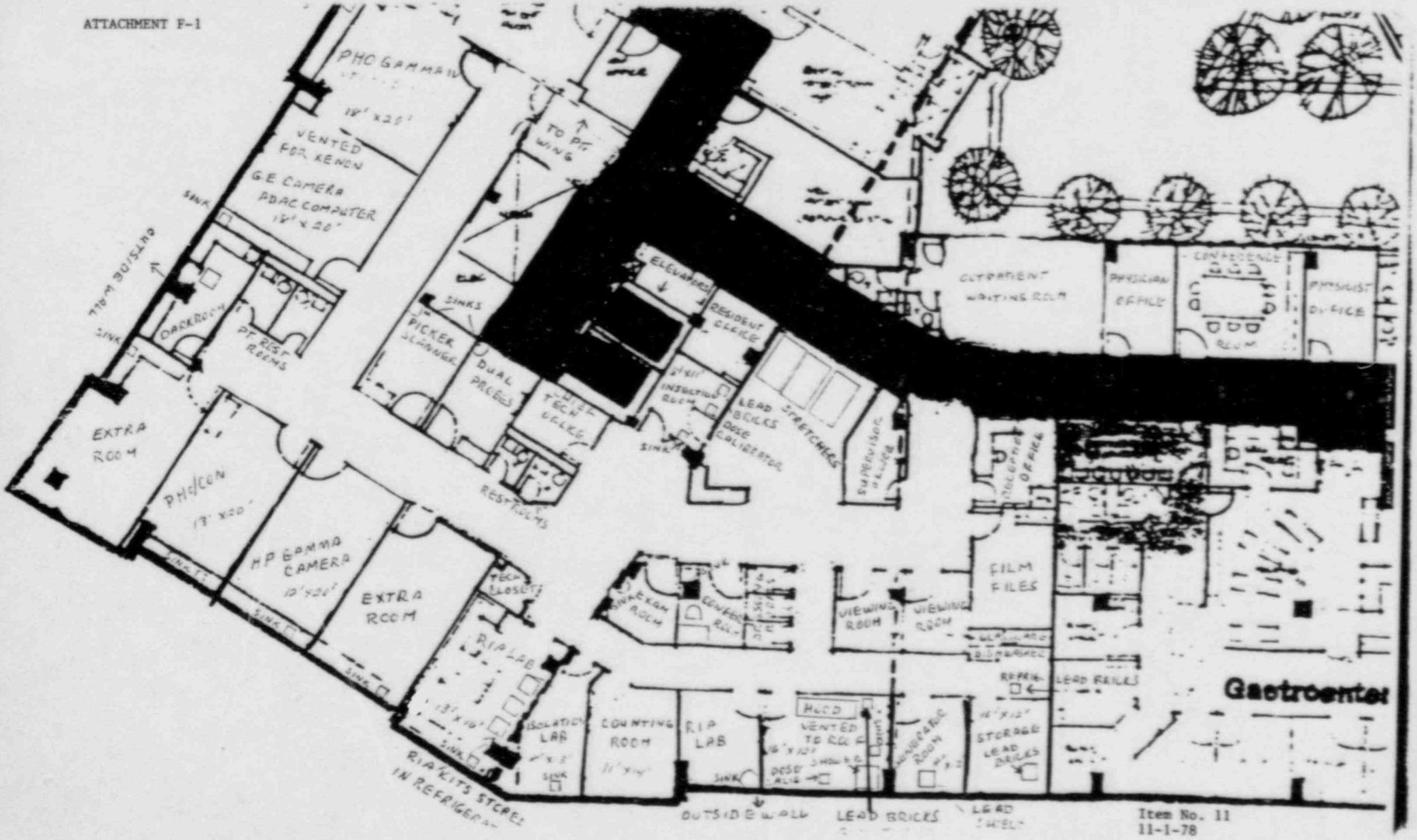
ATTACHMENT F

Item 11. FACILITIES AND EQUIPMENT

a. See Attachments F-1 to F-5 for diagram of Nuclear Medicine facilities

No remote handling equipment is currently necessary or available in our facility.

ATTACHMENT F-1

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ATTACHMENT F-2

GENERAL DESCRIPTION OF NUCLEAR MEDICINE DEPARTMENT

1- Physical Description (see attached floor plan)

1- 6 imaging rooms
2- 5 RIA laboratory rooms
3- 1 generator room with lead shield
4- 1 isotope storage room with lead brick shield
5- 1 room for dishwasher and glassware
7- 1 film file room
8- 1 receptions office
9- 1 supervisor office
10- 1 chief tech. office
11- 1 resident office
12- 2 viewing rooms
13- 2 examining rooms
14- 1 injection room
15- 1 dual probe room
16- 1 Picker scanner room
17- 4 rest rooms - 2 patient and 2 personnel
18- 1 waiting room
19- 1 library, conference room
20- 1 physician office
21- 1 physicist office
22- 1 patient waiting area (stretchers and wheelchairs)
23- 1 room on the 8th floor for storage and vented for xenon disposal

EQUIPMENT

1- Searle HP Gamma Camera with matrix system
2- Searle Pho Gamma 1V Camera with microdot and moving table
3- G.E. Gamma Camera and Formatter
4- ADAC Computer and two terminals
5- Picker 5" color scanner
6- Picker Dual probe counting system
7- Searle Pho/Con whole body imaging system
8- 2 300 sample gamma counters (Searle)
9- 2 Hewlett Packard programmable calculators
10- 2 refrigerated centrifuges (Sorvall)
11- 1 Picker deep well and scaler
12- Film processor
13- All laboratory equipment necessary to do quality Radioimmunoassay work

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ATTACHMENT F-3

EQUIPMENT CONTINUED

Monitoring equipment

1- 2 Victoreen survey meters

2- 1 lab monitor

3- 2 Searle dose calibrators

[redacted]

ATTACHMENT F-4
INDIVIDUAL ROOM DESCRIPTION

Pho Gamma 1V room - 18'x 20' sink and counter built in - vented for xenon directly outside

G.E.Camera room - 18' x 20' sink and counter built in - vented for xenon directly outside
ADAC computer

Pho/Con room - 13' x 20' sink and counter built in

HP Gamma camera room - 12' x 20' sink and counter built in

Injection room 8' x 11' sink and two counters built in

lead brick shielded area, lead glass shield, dose calibrator

Individual doses are delivered to this room each morning, in lead shields, by a licensed radiopharmacy ( Pharmatopes)

Used syringes are returned to the pharmacy in lead shields

RIA Lab 13' x 16' - sink and counter area

3 refrigeraters - In Vitro kits are stored in these refrigeraters. they are labeled with radiation signs and only lab materials are stored in them

Isolation lab. 8' x 13' sink, work counters

Counting room 11' x 14' work counters

Isotope storage 16' x 12' sink, shower, exhaust hood (vented for xenon)
lead brick storage area

131-I capsules, Co57 capsules and calibration sources are stored in this area behind lead bricks.

Generator room 8' x 12' counter space

lead shield- room not being used for generators since we use the services of a centralized pharmacy.

ATTACHMENT F-5

INDIVIDUAL ROOM DESCRIPTION continued

Isotope decay room 10' x 12' counter space
lead brick storage area
phantoms are stored here

8th floor -this room is a locked, isolated area of the hospital that is vented directly to the roof for xenon disposal.

ATTACHMENT G

Item 12. PERSONNEL TRAINING PROGRAM

a. Nuclear Medicine Personnel

St. Vincent Hospital employs only registered technologists. Continuing education opportunities are available to registered technologists throuch the hospital policy of reimbursing university courses pertaining to Nuclear Medicine and by attending seminars and work shops.

The department and hospital libraries contain the latest books, Nuclear Medicine Journals and other reference material as well as slides and video tapes.

The technicians are encouraged to attend daily conferences when they pertain to Nuclear Medicine.

A copy of the NRC License is posted and all policy books are available to all personnel.

Clip on and finger badges are provided (R.S. Landauer Co.) and badge readings are posted.

Blood tests are done every six (6) months on all personnel working with radioactivity and results are available to technicians in the employee health clinic.

b. Housekeeping Personnel

All areas where radioactive material is stored or in use are posted with the proper signs.

Housekeeping personnel have been instructed not to clean any area where radioactivity is used such as counter tops and lead shield areas.

Written notice is given to housekeeping personnel when they are not to clean a room until notified by the Radiation Safety Officer after the room has been monitored.

c. Nursing Personnel

Nursing personnel are given written instructions concerning the care of patients who have been treated with radioactive medication (see attached sheets, labeled G-1, G-2, and G-3.)

ATTACHEMNT G-1

NURSING CARE FOR PATIENTS RECEIVING RADIOACTIVE IODINE IN THERAPEUTIC DOSES

1. This patient has received an oral dose of _____ mCi of 131-I on _____ at _____ AM,PM.

2. Read the patient's chart for any specific instructions. Care for the patient should be performed in a normal and routine manner.

3. The patient must remain in his private room for 48 hours following administration of the dose.

4. Under no circumstances are pregnant women to participate in the care of this patient.

5. No visitors below age 18 allowed. All visitors must stay at least three feet from the bed and may visit for no more than two hours until restrictions are removed.

6. Urine and feces are to be passed in toilet whenever possible and must be followed by 3 flushings. Whenever a bedpan or urinal must be used, handle with rubber gloves, wash all equipment with soap and running water several times.

7. All waste generated in the patients room should be stored in a waterproof bag in the room until removed by authorized personnel.

8. If the patient vomits within 24 hours after oral administration, collect and save for Nuclear Medicine. Wear rubber gloves.

9. All linen and other articles ( including dressings) used in conjunction with the care of this patient within the first 48 hours shall be turned over to Nuclear Medicine.

10. Plastic or rubber covering shall be used on the pillow and mattress.

11. Isolation trays shall be used unless an exception is noted by the Radiologist.

12. If any body fluids are to be collected, all necessary equipment for the collection with appropriate shielding shall be furnished by Nuclear Medicine. Encourage the patient to collect his own urine when possible.

13. In case of death notify the Radiation Safety Officer.

14. wash hands with rubber gloves on then put gloves in comtaminated container and wash hands again.

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ATTACHMENT G-2

NURSING CARE FOR PATIENTS RECEIVING RADIOACTIVE GOLD OR CHROMIC PHOSPHATE IN THERAPEUTIC DOSES IN BODY CAVITIES

1. This patient has received _____ mCi of _____ (isotope) in _____ (site) at _____ (time) on _____ (date).

2. There is no danger in carrying out normal nursing care unless restrictions are nored below.

3. No special restrictions on visitors unless indicated below. However, for the first 48 hours visitors should sit at least 3 feet from the bed.

4. No special precautions for dishes, instruments, utensils.

5. No precautions needed for vomitus, urine, stools or sputum.

6. Dressings should be changed by the doctor. During the first 48 hours, dressings over the puncture should be saved for the Nuclear Medicine Department if they show staining. If there is no drainage from the puncture wound after the first 48 hours, the dressing may be handled in the usual manner.

7. If the surgical dressing becomes damp, stained, or bloody because of drainage or leakage from the puncture wound, DO NOT TOUCH THE DRESSING. CALL THE RADIAITION SAFETY OFFICER.

8. If the bed clothes become contaminated by drainage or leakage from the puncture wound, save the linen in a special bag for Nuclear Medicine. Handle with rubber gloves.

9. Pregnant women must not participate in the care of the patient.

10. In case of death,notify the Radiation Safety Officer.

11. Wash hands with rubber gloves on, then put gloves in contaminated container and wash hands again.

ATTACHMENT G-3 NURSING CARE FOR PATIENTS RECEIVING RADIOACTIVE PHOSPHORUS IN THERAPEUTIC DOSES

1. This patient has received _____ mCi of $^{32}P$ on _____ at _____ AM,PM orally _____ intravenously _____.
2. There is no danger in carrying out normal nursing care.
3. There are no restrictions on visitors other then usual hospital rules.
4. There are no special precautions for dishes, utensils, or instruments.
5. There are no special precautions necessary for sputum or excreta.
6. If phosphorus is given intravenously, no special precautions are necessary for vomitus.
7. If phosphorus is given orally, and the patient vomits within the first 24 hours, the vomitus and the soiled bedding, clothing, or utensils should be saved for Nuclear Medicine. The nurse should wear rubber gloves.
8. Wash hands with rubber gloves on then put gloves in contaminated container and wash hands again.

ATTACHMENT H

Item 13. PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL

a. Procurement of Radioactive Material

1. Approval-The procurement of all radioactive materials must be approved by the Committee. Approval of usage is based upon the adequacy of the safety procedures to be exercised, the training and experience of the applicant, and the adequacy of equipment and facilities. All applications to the Nuclear Regulatory Commission for licensing shall be submitted to the Committee for its approval prior to submitting the application to the Nuclear Regulatory Commission.

2. Requests-Requests for projects requiring the use of radioactive materials or other sources of ionizing radiation are made to the Committee through the R.S.O.

3. Requisitions-Upon approval of a particular project, requisitions for radioisotopes to be used in the project shall be submitted through the Supervisor of Nuclear Medicine. If the radioactive materials requires licensing by the Nuclear Regulatory Commission, a copy of this license must be on file in the Nuclear Medicine Department prior to the requisitioning of the radioactive material.

4. Notification-The supervisor of Nuclear Medicine shall be notified by the storeroom of all radioactive materials received. All radioactive materials shall be delivered to Nuclear Medicine for distribution unless specific written instructions from the R.S.O. has been obtained and delivered to the shipping and receiving area or to the front desk.

5. Records-Each individual user shall maintain a record of all radioisotopes received. A copy of these records shall be forwarded to the R.S.O. through Nuclear Medicine on the last working day of each month. Negative reports are required.

b. Receiving Radioactive Material

1. Week days and week ends-All patient doses are ordered as needed from the radiopharmacy. Pharmatopes (a centralized radiopharmacy) delivers all individual doses directly to the injecting room in the department of Nuclear Medicine.

2. Week Days-In Vitro kits are delivered to receiving or the switchboard area. The kits are picked up by Nuclear Medicine personnel from the switchboard area and are delivered to Nuclear Medicine immediately from receiving.

3. Week Ends-In vitro kits are delivered to the switchboard and X-ray personnel pick them up and store them until the Nuclear Medicine technician comes in. X-ray has been instructed to put the kits in a refridgerator in an isolated area. ( See Attachment H-1).

ATTACHMENT H-1

# RADIOACTIVE SHIPMENT RECEIPT REPORT

1. P.O.# _____ SURVEY DATE _____ TIME _____

   SURVEYOR _____

2. CONDITION OF PACKAGE:

   _____ O.K. _____ PUNCTURED _____ STATUS _____ WET

   _____ CRUSHED _____ OTHER _____

3. RADIATION UNITS OF LABEL: _____ UNITS (mR/hr)

4. MEMEASURED RADIATION LEVELS: a. Package surface _____ mR/hr

   b. 3' from surface _____ mR/hr

5. DO PACKING SLIP AND VIAL CONTENTS AGREE?

   a. Radionuclide _____ yes _____ no difference _____

   b. Amount _____ yes _____ no difference _____

   c. Chem Form _____ yes _____ no difference _____

6. WIPE RESULTS FROM: a. Outer _____ CPM = _____ DPM
   eff = ( )

   b. Final source container _____ CPM = _____ DPM
   eff=( )

8. SURVEY RESULTS OF PACKING MATERIAL AND CARTONS _____ mR/hr, CPM

9. DISPOSITION OF PACKAGE AFTER INSPECTION _____

10. IF NRC/CARRIER NOTIFICATION REQUIRED, GIVE TIME, DATE AND PERSONS NOTIFIED.

NOTE: The above form and procedures are strictly followed for shipments of licensed level quantities of Radioisotopes not delivered by Pharmatopes, Inc., a licensed distributor of radionuclides. (License number: 34-16654-01MD).

Item No. 13
Date: 11-1-78

ATTACHMENT I

Item 14. PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL

a. License will follow instructions as outlined in Appendix F. (Attachment I-1, I-2)

ATTACHMENT I-1

APPENDIX F

PROCEDURES FOR OPENING PACKAGES CONTAINING RADIOACTIVE MATERIAL

1. Visually inspect package for any sign of damage (e.g., wetness, crushed). If damage is noted stop procedure and notify Radiation Safety Officer.

2. Measure exposure rate at 3 feet from package surface--record. If >10 mR/hr--stop procedure and notify Radiation Safety Offier.

3. Measure surface exposure rate and record. If >200 mR/hr--stop procedure and notify Radiation Safety Officer.

4. Put on gloves.

5. Open the outer package (following manufacturer's directions, if supplied) and remove packing slip. Open inner package to verify contents (compare requisition, packing slips, and label on bottle) check integrity of final source container (inspect for breakage of seals or vials, loss of liquid, discoloration of packing material). Check also that shipment does not exceed possession limits.

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6. Wipe external surface of final source container with moistened cotton swab or filter paper held with forceps, assay and record.

7. Monitor the packing material and packages for contamination before discarding:

   a. if contaminated, treat as radioactive waste.

   b. if not, obliterate radiation labels before discarding in regular trash.

ATTACHMENT J

Item 15. GENERAL LABORATORY RULES FOR THE SAFE USE OF RADIOACTIVE MATERIALS

a. See Attachment J-1, J-2

ATTACHMENT J-1

VII. Radiation Protective Measures

A. External - The basic objective measures to reduce external radiation exposure are time, distance, and shielding. In every situation these three factors must be considered jointly. While shielding is desirable in reducing the exposure, it must be remembered that doing the job in one half the time is just as effective as adding a half value thickness of shielding material. Working twice as far from a point source is as effective as adding two half value thickeness of shielding material or doing the job in one fourth the time. Continuous use of monitoring equipment is the best method of evaluating the hazard and reducing the exposure. All users of radionuclides should have on hand adequate survey instruments to keep check on their operations.

B. Internal - The prevention of internal exposure is more exacting and less easily performed than that of external exposure. The maximum permissible levels of radioactive contamination in the air or on laboratory surfaces is of such a low level that they cannot be detected with ordinary survey instruments. If a low level contamination is suspected contact your immediate supervisor for a survey. The general policy in the use of radioisotopes is to use such equipment and procedures which will reduce the probability of ingestion and inhalation of radioisotopes into the body. Outlined below are general rules and procedures for this purpose:

1. Eating, drinking, smoking and the application of cosmetics are not permitted in laboratories or rooms where radioactive materials are used or stored.
2. Solutions shall not be pipetted by mouth.
3. Appropriate protective clothing shall be worn. A laboratory coat and gloves are the minimum protective clothing to be worn. Protective clothing is not to be worn outside the laboratory. Never wear laboratory coats to the cafeteria. Monitor clothing before it is laundered.
4. Wash hands thoroughly before leaving the laboratory.
5. If contamination is suspected, all work shall be halted immediately and notify your supervisor.
6. All injuries shall be monitored to determine possible contamination.
7. Special protection is required for wounds so as to prevent the entry of radioactive materials. Water proof adhesive tape should seal any other bandaging.
8. Everything in the laboratory or room should be considered to be contaminated and should be monitored before removing from the laboratory.
9. All persons working with radioactive materials shall be aware of radiation safety procedures. The individual user is responsible to see that his people have been properly trained and have read the "Radiation Safety Manual".
10. Radioactive materials shall be used and stored in a way which prevents unauthorized access to radioactive materials.
11. All containers for radioactive materials shall be properly labeled,(per 10 CFR,part 20).

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VII. B (Continued)

12. All areas and rooms in which radioactive materials are used or stored shall be properly posted, (per 10 CFR, part 20).

C Handling Procedures

1. Radioactive materials are to be handled only by persons aware of the hazards of the materials.

2. Shipping containers shall be opened and treated as though it were contaminated until it is monitored to prove differently.

3. When handling radioactive material personnel shall wear gloves and work on a surface covered with absorbent paper or equivalent material.

4. Remote handling equipment shall be used when the external radiation of a container exceeds 38 mr/hr at 1 centimeter.

5. To reduce the risk of spills to a minimum:

   a. use double containers

   b. use protective covering and lids

   c. use unbreakable containers to store radioisitopes

   d. use caution in transfers - try a "dry run".

   e. use dry box for dusty materials

   f. use propipettors - never pipette by mouth

   g. use absorbent paper or equivalent to cover work surface to contain any possible spill.

D. Good Housekeeping Habits - Much of the job of preventing the spread of contamination is a matter of good housekeeping.

1. Keep the laboratory neat and clean. Keep the work area free of equipment and materials not required for the immediate procedure.

2. Wash hands and arms thoroughly before handling any objects which goes to the mouth, nose or eyes. Monitor the hands whenever contamination is suspected and decontaminate immediately.

3. Keep fingernails short and clean. Do not work with radioactive materials if there is a break in the skin below the wrist unless the wound is so protected that radioactive materials cannot gain access to the body. Cover the break with waterproof tape and wear gloves.

THINK

ATTACHMENT K

Item 16. EMERGENCY PROCEDURES, INCLUDING NAMES AND TELEPHONE NUMBERS OF PERSONNEL TO BE NOTIFIED

a. License will follow procedures as outlined in Appendix H. (See Attachment K-1, K-2

# 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. Include all other contaminated materials such as disposable gloves.

4. SURVEY: With a G.M. Survey Meter, check the area around the spill, your 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.

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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: K. J. SCHROADER, M.S. / R.E. MYERS, M.D.

OFFICE PHONE: 259-4127 / RADIOLOGY 4340

HOME PHONE: 866-8214 / 882-8132

Item No. 16
Date: 11-1-78

ATTACHMENT L

Item 17. AREA SURVEY PROCEDURES

a. License will follow procedures as outlined in Appendix I. (See Attachment L-1, L-2)

ATTACHMENT L-1

# APPENDIX I

## SURVEY PROCEDURES

A. All elution, preparation and injection areas will be surveyed daily with a G-M survey meter and decontaminated if necessary.

B. Laboratory areas where only small quantities of radioactive material are used (less than 100 μCi) will be surveyed monthly.

C. All other laboratory areas will be surveyed weekly.

D. The weekly and monthly survey will consist of:

1. A measurement of radiation levels with a survey meter sufficiently sensitive to detect 0.1 mR/hr.

2. A series of wipe tests to measure contamination levels. The method for performing wipe tests will be sufficiently sensitive to detect 100 dpm.

E. A permanent record will be kept of all survey results, including negative results. The record will include:

1. Location, date, and type of equipment used.

2. Name of person conducting the survey.

3. Drawing of area surveyed, identifying relevant features such as active storage areas, active waste areas, etc.

4. Measured exposure rates, keyed to location on drawing (point out rates that require corrective action).

5. Detected contamination levels, keyed to locations on drawing.

6. 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.

F. Area will be cleaned if the contamination level exceeds 100 dpm/ 100 $cm^2$.

NOTE: For daily surveys where no abnormal exposures are found, only the date, the identification of the person performing the survey, and the survey reports will be recorded.

ATTACHMENT M

Item 18. WASTE DISPOSAL PROCEDURES

a. See Attachment M-1

b. Licensed service used for waste desposal: Pharmatopes, Inc.
License No.: 34-16654-01MD

c. See Attachment M-2, M-3

III. Disposal

A. Procedure

1. Burial
   a. Contaminated material must be packaged in such a manner that contamination of the personnel handling them is not likely and must be stored in the area designated by the R.S.O.

   b. Each package must be individually labeled to show the isotope(s) the chemical form(s), the activity, the assay date and the individual user's name. Labels may be obtained from the R.S.O.

   c. Burial shall be through a commercial service licensed by the Nuclear Regulatory Commission.

2. Sanitary SewageSystem- Only radioactive material which is readily soluable or dispersible in water shall be discharged into the sanitary sewage system. Disposal shall conform to the limits specified in the State and Federal Regualtions.

3. Storage for Decay
   a. Contaminated materials must be packaged in such a manner that contamination of the personnel handling them is not likely and must be stored in the area designated by the R.S.O.

   b. Each package must be individually labeled to show the isotope(s) the chemical form(s), the activity, the assay date and the individual user's name. Labels may be obtained from the R.S.O.

   c. Final deposition shall be through burial by a licensed commercial company, to the Sanitary Sewage System as described above or in 1 and 2 above.

   d. Short-lived radionuclides may be stored and allowed to decay until they can be disposed of as non-radioactive wastes. A decay time of 10 half-lives reduces the activity to less than 0.1% of the original value.

B. Disposal Records

1. Each individual user shall maintain a record of radioisotope disposition.

2. A copy of the disposal records shall be forwarded to the R.S.O., through Nuclear Medicine, on the last working day of each month. Negative reports are required.

ATTACHMENT M-2

# APPENDIX J

## WASTE DISPOSAL PROCEDURES

1. Liquid Waste will be disposed of

   Check as appropriate

   ✓ By commercial waste disposal service (See also No. 4 below)

   ✓ In the sanitary sewer system in accordance with Section 20.303 of 10 CFR Part 20.

   ____ Other (specify): _____

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 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 disposed of as normal trash. (Note: this method of disposal may not be practical for generators containing long-lived radioactive contaminants)

   ✓ Disposed of by commercial waste disposal service (See also No. 4 below)

   ____ Other (specify): _____

3. Other Solid Waste will be:

   (Check as appropriate)

   ✓ Held for decay until radiation levels as measured 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.

Item No. 18
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✓ Disposed of by commerical waste disposal service (See also No. 4 below)

____ Other (Specify): _____

_____

4. The commerical waste disposal service used will be: _____

PHARMATOPES, INC. TOLEDO OHIO

(Name) (City, State)

NRC/Agreement State License No. 34-16654-01 MD

Item No. 18

Date: 11-1-78

ATTACHMENT N

Item 19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS

a. License will follow procedures described in Appendix K. (See Attachment N-1, THRU N-7)

b. Instructions: Neither urine nor excreta is collected or stored for patient's receiving doses of 100mCi or less of I-131. Instead, the patient is instructed to flush the commode three (3) times following each use. Vomitus and other salivary waste contamination, however, is monitored and stored.

c. Instructions to Nurses - See Attachment N-8 - N-10

d. Instructions to Patient s - See Attachment N-11

ATTACHMENT N-1

APPENDIX K

PROCEDURES FOR USE OF GROUPS IV AND V RADIOPHARMACEUTICALS
FOR TREATMENT OF PATIENTS

1. All patients treated with iodine-131 or gold-198 will be placed in a private room with a toilet.

2. The patient's room will be properly posted in accordance with Section 20.203, 10 CFR Part 20.

3. Surveys of the patient's room and surrounding areas will be conducted as soon as practicable after administration of the treatment dose. Exposure rates will be measured at the patient's bedside, three feet away and the entrance to the room. The Radiation Safety Officer or his designate will then determine how long a person may remain at these positions and will post these times in the patient's chart and on his door. The results of daily surveys will be used to recalculate permitted times which will be posted on the patient's chart and on his door.

4. The form, Nursing Instructions for Patients Treated with Phosphous-32, Gold-198, or Iodine-131, will be completed immediately after administration of the treatment dose. A copy will be posted in the patient's chart.

5. Radiation levels in unrestricted areas will be maintained less than the limits specified in Section 20.105(b), 10 CFR Part 20.

6. All linens will be surveyed for contamination before being removed from the patient's room and will, if necessary, be held for decay.

X 7. Disposable plates, cups, eating utensils, tissue, surgical dressings, and other similar waste items will be placed in a specially designated container. The material will be collected daily by the Radiation Safety Officer (or his designate) checked for contamination, and disposed of as normal or radioactive waste, as appropriate.

X 8. Non-disposable items used for these patients will be held in plastic bags in the patient's room, and checked for contamination by the Radiation Safety Officer or his designate. Items may be returned for normal use, held for decay or decontaminated, as appropriate.

9. Urine and vomitus, from iodine-131 therapy patients receiving > 100 mCi will be stored for decay in our radioactive waste storage area. When it has reached background levels as measured with a low-level survey meter, it will be released to the sanitary sewer system.

10. Before a therapy patient's room is reassigned to another patient, the room will be surveyed for contamination (and decontaminated if necessary) and all radioactive waste and waste containers will be removed.

11. Nursing Instructions

a. Nurses should spend only that amount of time near the patient required for ordinary nursing care. Special restrictions may be noted on the precaution sheet in the patient's chart. Nurses should read these instructions before administering to the patients. Call the Nuclear Medicine Department if you have any questions about the care of these patients.

b. Visitors will be limited to those 18 years of age or over, unless other instructions are noted on the precautions sheet in the patient's chart.

c. Patients must remain in bed while visitors are in the room and visitors should remain at least three feet from the patient.

d. Radioactive patients are to be confined to their rooms except for special medical or nursing purposes approved by the Nuclear Medicine Department.

e. No nurse, visitor or attendant who is pregnant should be permitted in the room of a patient who has received a therapeutic amount of radioactivity until the patient no longer presents a radiation hazard. Female visitors should be asked whether they are pregnant.

f. Attending personnel must wear rubber or disposable plastic gloves when handling urinals, bedpans, emesis basins or other containers having any material obtained from the body of the patient. Wash gloves before removing and then wash hands. The gloves must be left in the patient's room in the designated waste container. These gloves need not be sterile or surgical in type.

g. Disposable items should be used in the care of these patients, whenever possible. These items should be placed in the designated waste container. Contact the Nuclear Medicine Department for proper disposal of the contents of the designated waste container.

h. All clothes and bed linens used by the patient should be placed in the laundry bag provided and left in the patient's room to be checked by a member of the Nuclear Medicine Department.

i. All non-disposable items should be placed in a plastic bag and left in the patient's room to be checked by a member of the Nuclear Medicine Department.

j. Surgical dressings should be changed only as directed by physician. Gold-198 leaking from a puncture wound will stain the dressings dark red or purple. Such dressings should not be discarded but should be collected in plastic bags and turned over to the Nuclear Medicine Department. Handle these dressings only with tongs or tweezers. Wear disposable gloves.

k. For iodine-131 patients:

(1) Urine from iodine-131 patients will be collected in special containers provided by the Nuclear Medicine Department. The patient should be encouraged to collect his own urine in the container. If the patient is bedridden, a separate urinal or bed pan should be provided. The urinal or bed pan should be flushed several times with hot soapy water after use.

(2) If the nurse helps to collect the excreta, she should wear disposable gloves. Afterwards she should wash her

hands with the gloves on and again after the gloves are removed. The gloves should be placed in the designated waste container for disposal by the Nuclear Medicine Department.

(3) Disposable plates, cups, and eating utensils will be used by patients who are treated with iodine-131.

(4) Vomiting within 24 hours after oral administration, urinary incontinence, or excessive sweating within the first 48 hours may result in contamination of linen and/or floor. In any such situations or if radioactive urine and/or feces is spilled during collection, call the Nuclear Medicine Department, Ext. 4127. Meanwhile, handle all contaminated material with disposable gloves and avoid spreading contamination.

(5) All vomitus must also be kept in the patient's room for disposal by the Nuclear Medicine Department. Feces need not be routinely saved, unless ordered on the chart. The same toilet should be used by the patient at all times and it should be well flushed (3 times).

l. Utmost precautions must be taken to see that no urine or vomitus, is spilled on the floor or the bed. If any part of the patient's room is suspected to be contaminated, notify the Nuclear Medicine Department.

m. If a nurse, attendant or anyone else knows or suspects that his skin, or clothing, including shoes, is contaminated, notify the Nuclear Medicine Department immediately. This person should remain in the patient's room and not walk about the hospital. If the hands become contaminated, wash immediately with soap and water.

n. If a therapy patient should need emergency surgery or should die, notify the Nuclear Medicine Department immediately.

o. When the patient is discharged call the Nuclear Medicine Department and request that the room be surveyed for contamination before remaking the room.

ATTACHMENT N-8

NURSING CARE FOR PATIENTS RECEIVING RADIOACTIVE
IODINE IN THERAPEUTIC DOSES

1. This patient has received an oral dose of _____ mCi of 131-I on _____ at _____ AM,PM.

2. Read the patient's chart for any specific instructions. Care for the patient should be performed in a normal and routine manner.

3. The patient must remain in his private room for 48 hours following administration of the dose.

4. Under no circumstances are pregnant women to participate in the care of this patient.

5. No visitors below age 18 allowed. All visitors must stay at least three feet from the bed and may visit for no more than two hours until restrictions are removed.

6. Urine and feces are to be passed in toilet whenever possible and must be followed by 3 flushings. Whenever a bedpan or urinal must be used, handle with rubber gloves, wash all equipment with soap and running water several times.

7. All waste generated in the patients room should be stored in a waterproof bag in the room until removed by authorized personnel.

8. If the patient vomits within 24 hours after oral administration, collect and save for Nuclear Medicine. Wear rubber gloves.

9. All linen and other articles ( including dressings) used in conjunction with the care of this patient within the first 48 hours shall be turned over to Nuclear Medicine.

10. Plastic or rubber covering shall be used on the pillow and mattress.

11. Isolation trays shall be used unless an exception is noted by the Radiologist.

12. If any body fluids are to be collected, all necessary equipment for the collection with appropriate shielding shall be furnished by Nuclear Medicine. Encourage the patient to collect his own urine when possible.

13. In case of death notify the Radiation Safety Officer.

14. wash hands with rubber gloves on then put gloves in comtaminated container and wash hands again.

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ATTACHMENT N-9

NURSING CARE [redacted] PATIENTS RECEIVING RADIOACTIV[redacted]OLD OR CHROMIC PHOSPHATE IN THERAPEUTIC DOSES IN BODY CAVITIES

1. This patient has received _____ mCi of _____ (isotope) in _____ (site) at _____ (time) on _____ (date).

2. There is no danger in carrying out normal nursing care unless restrictions are nored below.

3. No special restrictions on visitors unless indicated below. However, for the first 48 hours visitors should sit at least 3 feet from the bed.

4. No special precautions for dishes, instruments, utensils.

5. No precautions needed for vomitus, urine, stools or sputum.

6. Dressings should be changed by the doctor. During the first 48 hours, dressings over the puncture should be saved for the Nuclear Medicine Department if they show staining. If there is no drainage from the puncture wound after the first 48 hours, the dressing may be handled in the usual manner.

7. If the surgical dressing becomes damp, stained, or bloody because of drainage or leakage from the puncture wound, DO NOT TOUCH THE DRESSING. CALL THE RADIAITION SAFETY OFFICER.

8. If the bed clothes become contaminated by drainage or leakage from the puncture wound, save the linen in a special bag for Nuclear Medicine. Handle with rubber gloves.

9. Pregnant women must not participate in the care of the patient.

10. In case of death,notify the Radiation Safety Officer.

11. Wash hands with rubber gloves on, then put gloves in contaminated container and wash hands again.

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[redacted]

ATTACHMENT H-10

NURSING [redacted]E FOR PATIENTS RECEIVING RADIO[redacted]TIVE PHOSPHORUS IN THERAPEUTIC DOSES

1. This patient has received _____ mCi of $^{32}P$

   on _____ at _____ AM,PM

   orally _____ intravenously _____.

2. There is no danger in carrying out normal nursing care.

3. There are no restrictions on visitors other then usual hospital rules.

4. There are no special precautions for dishes, utensils, or instruments.

5. There are no special precautions necessary for sputum or excreta.

6. If phosphorus is given intravenously, no special precautions are necessary for vomitus.

7. If phosphorus is given orally, and the patient vomits within the first 24 hours, the vomitus and the soiled bedding, clothing, or utensils should be saved for Nuclear Medicine. The nurse should wear rubber gloves.

8. Wash hands with rubber gloves on then put gloves in contaminated container and wash hands again.

97160

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ATTACHMENT N-11

# HOME INSTRUCTIONS - I-131 THERAPY

Home precautions to be taken by the patient after receiving a treatment dose of Radioiodine ( I-131 ).

1. Follow these instructions for two weeks.

   a. Sleep alone. If employed, take a week off, if possible-longer.

   b. Whenever possible use separate toilet facilities, that is, a toilet not used by other members of the family. Flush the toilet at least three times after use.

   c. Use care so that the area around the toilet is not soiled with urine.

   d. Bed linen and clothing need no special precautions, except when there are young children in the family, in which case linen and clothing should be washed separately with soap (rather than detergent) the tub or washing machine should be rinsed four times.

   e. Wash out the bath tub with soap and cleanser after tub or shower bath.

ATTACHMENT O

Item 20. THERAPEUTIC USE OF SEALED SOURCES

a. Areas where sources will be stored:
The sealed sources will be stored in a radioisotope safe (See O-1 & Attachment O-2) and placed in a room as noted in Attachment O-3. The orthovoltage room occupancy is estimated at 1/8.?

b. Special precautions while handling sealed sources will include:
1. Personnel standing behind lead shield with lead glass viewing window shile loading sources in applicator.
2. Use of forceps in the handling of all sources.
3. Transport of sources in radium cart as described in Attachment O-4
4. Radiation Safety Officer or his/her designated appointee will insure that all sources are accounted for and returned to storage area following treatment.

c. Special instruction for nurses:
All procedures outlined in Appendix L will be followed with the exception of the issuance of film or finger badges to the nursing staff. Pocket dosimeters will be used for personnel monitoring. (See Attachments O-5 to O-12)

d. Radiation doses to extremities of personnel handling sealed sources will be determined with TLD finger badges.

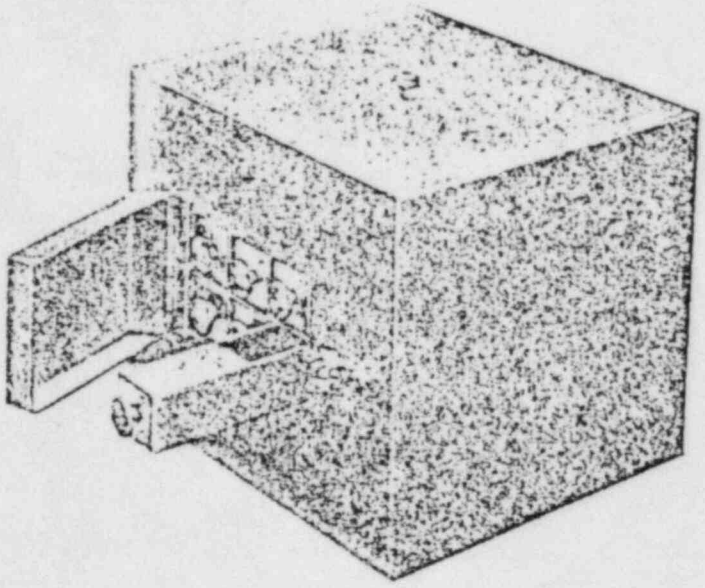
e. See Attachment O-4 for equipment and sheilding for transporting of sources from storage sites to the place of use.

f. Source accountability is maintained by:
1. Lock or Radium Safe; key held only by Radiation Safety Officer or his/her designated appointer.
2. Sources removed only in the presence of Radiation Safety Officer or his/her designated appointee.
3. Source inventory performed each time implant is performed, both at the time of source removal and at the time of source return.

g. Room survey performed for each patient to include:
1. Surface exposure rate.
2. Bedside exposure rate.
3. Exposure rate at 3 feet.
4. Entrance of room exposure rate.

This survey is performed upon initiation of treatment. Dismissal survey is also performed to ensure that no residual activity remains in patient or patient surroundings, (for temporary implants only).

# RADIOISOTOPE STORAGE SAFE



- Offers maximum protection.
- Custom-designed storage drawers available.

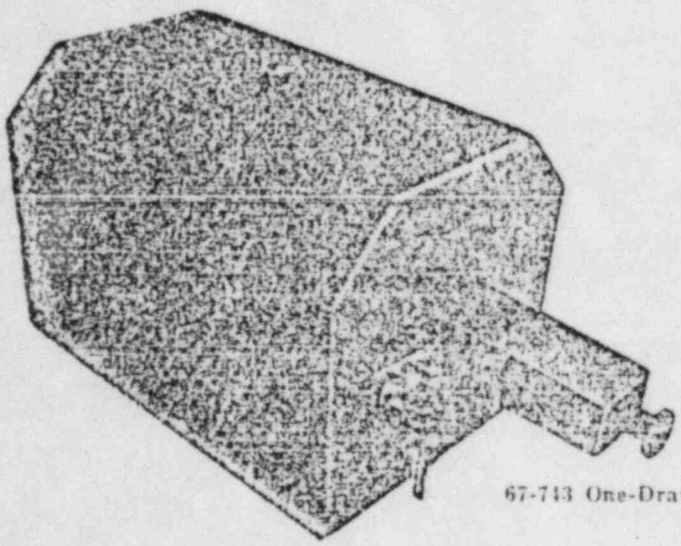
67-716 Six-Drawer Storage Safe

Constructed of steel and shielded with 3" or 4" of lead, the Radioisotope Storage Safe provides maximum protection against exposure to radiation. Each safe has a door key-lock and is fire-proof.

Six models, with different numbers of storage drawers, are available. The storage area in each drawer is 6" L x 1¾" W x 1¾" D.

## Custom-Designed Drawers

For special requirements relating to drawers, source holders or other modifications, a separate price quotation will be forwarded upon request.



67-713 One-Drawer Storage Safe

| Model | No. of Drawers | Size of Safe | Lead Thickness | Net Weight |
|---|---|---|---|---|
| 67-713 | 1 | 8½" sq. x 12½" long | 3" ( 7.6 cm) | 275 lbs. |
| 67-713-A | 1 | 10½" sq. x 14½" long | 4" (10.2 cm) | 490 lbs. |
| 67-714 | 2 | 10½" w. x 8½" h. x 12½" long | 3" ( 7.6 cm) | 425 lbs. |
| 67-714-A | 2 | 12½" w. x 10½" h. x 14½" long | 4" (10.2 cm) | 675 lbs. |
| 67-715 | 4 | 12¾" sq. x 14½" long | 4" (10.2 cm) | 950 lbs. |
| 67-716 | 6 | 15" w. x 12¾" h. x 14½" long | 4" (10.2 cm) | 1150 lbs. |

**97160**

F.O.B. Shipping Point

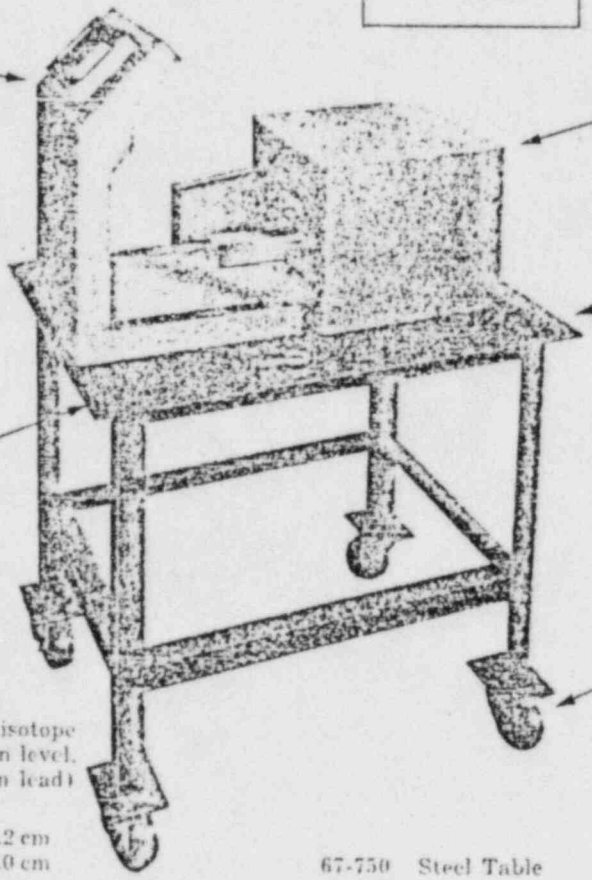
Item No. 20
11-1-78

APPENDIX #2

transportation of radioisotopes to the point of use under hazard-free conditions.

mination. Has 2X magnification. Swing arm permits maximum maneuverability. 110V, AC.

**L-Block Lead Shield.** Heavy (410 lbs) solid lead shielding (5.0 cm thick) protects head and torso from radiation. Tilted lead-glass window (5.0 cm thick, 4" H x 8" W) has a density of 6.2 gm cm$^{-3}$. Permits safe, unobstructed view of working area. 22" H x 14" W x 16½" L. An optional 13" x 15" x ¾" stainless steel work tray for the L-Block is available.



**Shielded Storage Safe.** Choice of six sizes (a 6-drawer unit is shown). See over for complete details.

**Steel Table.** 28" x 36" x 33¾" high. Provides solid support surface for components of work station. Smooth beveled-edged worktop offers adequate area for tool and instrument placement. Table support frame is solid steel with welded corner joints for maximum strength. Weighs 120 lbs. Has 4" x 4" floor supports.

**Storage Drawer** (optional). Fits under worktop. 19½" x 24" x 7".

**Swivel Casters** (optional). Heavy-duty, 5" casters provide easy mobility to work station.

As a guide to determine maximum isotope content for a desired surface radiation level, the following Tenth-Value Layers (in lead) are provided.*

| | | | |
|---|---|---|---|
| Radium | 5.5 cm | Cesium-137 | 2.2 cm |
| Cobalt-60 | 4.1 cm | Iridium-192 | 2.0 cm |
| | | Gold-198 | 1.1 cm |

*National Council on Radiation Protection and Measurements, Report No. 40, "Protection Against Radiation from Brachytherapy Sources."

67-750 Steel Table
67-750D Optional Storage Drawer
67-751 Optional 5" Swivel Casters
67-752 L-Block Lead Shield
67-752T Stainless Steel Tray for L-Block
67-753 Magnifying-Viewing Lamp

F.O.B. Shipping Point

Radiation Therapy Division
NUCLEAR ASSOCIATES, INC.
Subsidiary of
RADIATION-MEDICAL PRODUCTS CORP.
100 VOICE ROAD • CARLE PLACE, N.Y. 11514 • (516) 741-3660

(OVER)

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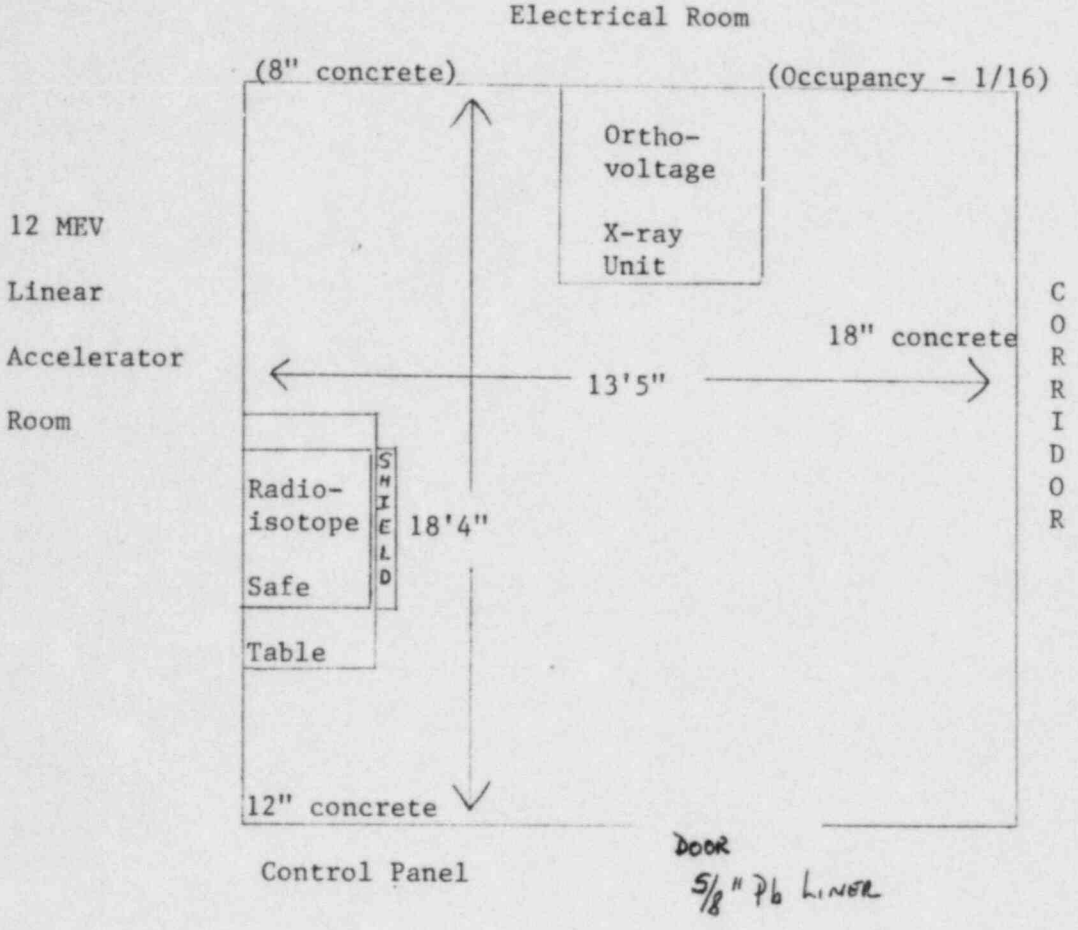
1-476 Bulletin 166C

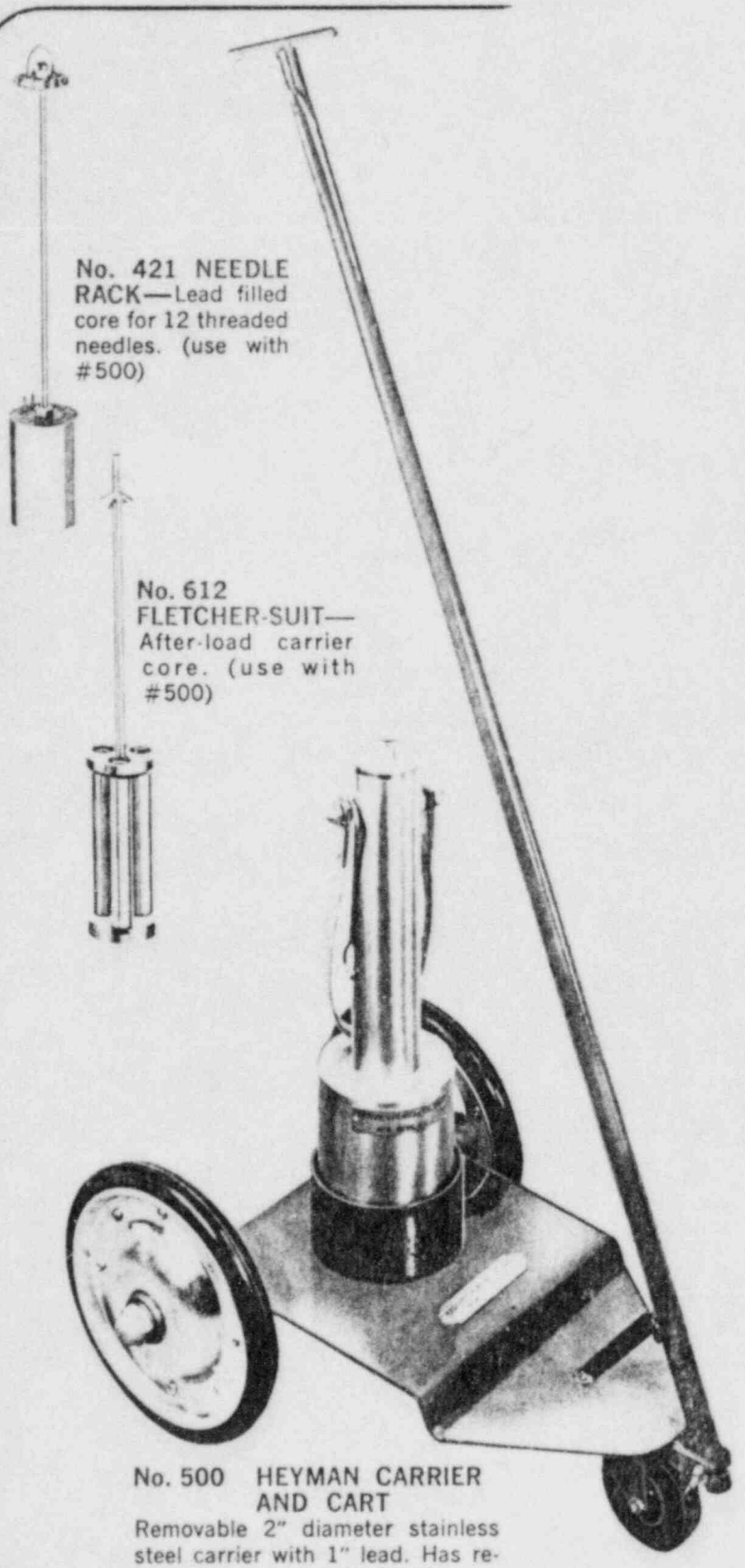
ATTACHMENT 0-3




Item No. 20
11-1-78

ATTACHMENT 0-4

# PROTECTION



No. 421 NEEDLE RACK—Lead filled core for 12 threaded needles. (use with #500)

No. 612 FLETCHER-SUIT—After-load carrier core. (use with #500)

**No. 500 HEYMAN CARRIER AND CART**

Removable 2" diameter stainless steel carrier with 1" lead. Has removable core to hold 12 Heyman capsules to sterilize and prevent wire tangling. 8" wheels, 3" caster, and 40" handle.
(Also available with 3" diameter)

97160

Item No. 20
11-1-78

# APPENDIX L

## PROCEDURES FOR USE OF GROUP VI SOURCES FOR TREATMENT OF PATIENTS

1. All patients treated with brachytherapy sources will be placed in a private room with toilet.

2. The patient's room will be properly posted in accordance with Section 20.203, 10 CFR Part 20.

3. Surveys of the patient's room and surrounding areas will be conducted as soon as practicable after sources are implanted. Exposure rate measurements will be taken at the patient's bedside, three feet away and at the entrance to the room. The Radiation Safety Officer or his designate will then determine how long a person may remain at these positions and will post these times in the patient's chart.

4. The form, Nursing instructions for Patients Treated with Brachytherapy Sources, will be completed immediately after sources are implanted and placed in the patient's chart.

5. Radiation levels in unrestricted areas will be maintained less than the limits specified in Section 20.105(b), 10 CFR Part 20.

6. Nurses caring for brachytherapy patients will be assigned film badges. TLD finger badges will also be assigned to nurses who must provide extended personal care to the patient.

OMIT
Pocket dosimeters will be used

7. At the conclusion of treatment, a survey will be performed to ensure that all sources have been removed from the patient and that no sources remain in the patient's room or any other area occupied by the patient. At the same time all radiation signs will be removed and all film and TLD badges assigned to nurses will be collected.

8. Instructions to Nurses

   a. Special restrictions may be noted on the precaution sheet in the patient's chart. Nurses should read these instructions before administering to the patient. Call the Nucelar Medicine Department if you have any questions about the care of these patients.

b. Nurses should spend only the minimum necessary time near a patient for routine nursing care, ~~but must obtain and wear a film badge.~~

c. When a nurse receives an assignment to a therapy patient, ~~a film or TLD badge should be obtained immediately from the Nuclear Medicine Department.~~ The badge shall be worn only by the nurse to whom it is issued and shall not be exchanged between nurses.

will use pocket dosimeters

d. Pregnant nurses should not be assigned to the personal care of these patients.

e. Never touch needles, capsules or containers holding brachytherapy sources. If a source becomes dislodged use long forceps and put it in the corner of the room or in the shielded container provided; contact the Nuclear Medicine Department at once.

f. Bed bath given by the nurse should be omitted while the sources are in place.

g. Perineal care is not given during gynecologic treatment; the perineal pad may be changed when necessary, unless orders to the contrary have been written.

h. Surgical dressings and bandages used to cover the area of needle insertion may be changed only by the attending physician or or radiologist, and MAY NOT BE DISCARDED until directed by the radiologist. Dressings should be kept in a basin until checked by the radiologist or member of the Nuclear Medicine Department.

Special orders will be written for oral hygiene for patients with oral implants.

i. No special precautions are needed for sputum, urine, vomitus, stools, dishes, instruments, utensils or bedding unless specifically ordered.

j. These patients must stay in bed unless orders to the contrary are written.

k. Visitors will be limited to those 18 years of age or over, unless other instructions are noted on the precaution sheet in the patient's chart.

l. Visitors should sit at least three feet from the patient and should remain no longer than the times specified on the form posted on the patient's door and in his chart.

m. No nurse, visitor or attendent who is pregnant should be permitted in the room of a patient while brachytherapy sources are implanted in the patient. Female visitors should be asked whether they are pregnant.

n. Emergency Procedures

(1) If an implanted source becomes loose or separated from the patient, or

(2) If the patient dies, or

(3) If the patient requires emergency surgery, immediately call _____. Phone No. (days) _____, (nights) _____.

o. At the conclusion of treatment, call the Radiation Safety Officer and request that the patient and room be surveyed to be sure all radioactive sources have been removed.

ATTACHMENT 0-10

NURSING CARE FOR PATIENTS RECEIVING INTERSTITIAL

RADIUM, CO 60 OR OTHER SEALED SOURCES

1. This patient has received _____ mCi of _____

(radium, cesium, cobalt, radon, iridium, iodine, gold) on _____

at _____ (a.m., p.m.). The site of application is _____

2. The patient is to be restricted to bed and put in a private room unless otherwise specified. He should not be allowed to roam from there during the administration of the treatment.

3. In the case of gynecological implants, the patient is to remain as stationary as possible to ensure that the sources do not shift from their original position. The patient is not to lie on her side, to sit up, or to draw her knees up in such a manner as to increase intra abdominal pressure or to cause a shifting of the source applicator. The head of the bed may be inclined 30°.

4. No visitors below the age of 18 is allowed. All visitors must stay at least 3 feet from the patient and may visit for no more than twenty (20) minutes per visit, three visits maximum during the entire patient stay.

5. Nurses should spend only the necessary amount of time near the patient as required for ordinary nursing care. Under no circumstances are pregnant women to participate in the care of this patient.

6. Nurses and visitors should sign in and out of the room so that an accurate record of exposure time may be maintained by the Radiation Saftey Officer.

7. Items merely coming into contact with the patient will not become contaminated.

8. Perineal care is not given during the treatment, but the perineal pad may be changed as necessary. If the pad is changed, be sure the radioactive material or containers are not disturbed or loosened. Place the pads in a waste container so that they may be monitored by the Radiation Safety Officer before they are disposed of permanently.

9. If the sealed sources or containers become loose or fall out, do not try to replace them, call the Radiation Safety Officer.

10. Nurses are not to take the responsibility for handling or storage of removed applicators.

11. In case of death, notify the Radiation Safety Officer.

12. Wash hands with rubber gloves on, then put gloves in contaminated container and wash hands again.

SPECIAL INSTRUCTIONS

ATTACHMENT 0-11

# PRE-ADMISSION INSTRUCTIONS FOR RADIUM IMPLANT

_____ will be admitted to St. Vincent's Hospital on _____ for a radium implant. You should come to the registration department between 2 and 4 p.m. for the admitting procedure. Following admission, you will be placed in a private room and remain there until after the implant is removed.

The procedure is scheduled in the operating room for_____ on _____. At this time, the radium container will be inserted, along with a foley catheter into the bladder. While the implant is in place, a nurse will assist you with bowel movements. Following a period in the Recovery Room, you will be transported to the X-ray department for films of your implant to be taken. These films are used for determining the amount of radium to be used and the length of the implant time. After the films are approved, you will be taken back to your room and the radium will be inserted within a few hours.

While the radium is in place, remain as stationary as possible so that the position of the container inside you does not change. You are not to turn to your side, to sit up, or draw up your knees. The head of the bed may be raised 30 degrees, the nurse can judge this for you if necessary.

The length of time the radium stays in place is calculated individually for each patient, but will normally be in place for 48-72 hours. You will be told of the length of the implant time within the first twenty-four (24) hours following insertion. You will normally be discharged the day after the radium is removed.

No pain is associated with the radium, however, a pressure type sensation may result from packing used to anchor the container.

Perineal care will not be given while the radium is in place, however, the pad will be changed by the nurse.

Only visitors over the age of 18 are allowed. They must stay at least 3 feet

away from you and may visit for no more than 20 minutes per day with a maximum for visits per treatment time. Absolutely no one who is pregnant should visit. All visitors are to sign in and out on a list posted on the door of the patients' roo for our exposure time record. Once the radium is removed from your room, you are longer exposing anyone to radiation. Since the radium is encapsulated in stainle steel, you cannot contaminate anything, either during or after your implant. All trays, linens, personal articles, etc. are not affected in any way by the radium.

Any questions about your implant should be directed to your physician or nu

away from you and may visit for no more than 20 minutes per day with a maximum for 3 visits per treatment time. Absolutely no one who is pregnant should visit. All visitors are to sign in and out on a list posted on the door of the patients' room for our exposure time record. Once the radium is removed from your room, you are no longer exposing anyone to radiation. Since the radium is encapsulated in stainless steel, you cannot contaminate anything, either during or after your implant. All food trays, linens, personal articles, etc. are not affected in any way by the radium.

Any questions about your implant should be directed to your physician or nurse.