Attachment 3

RADIATION SAFETY PROGRAM
VETERANS ADMINISTRATION WADSWORTH MEDICAL CENTER
LOS ANGELES, CALIF.

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REVISED: January, 1980

RADIATION SAFETY PROGRAM
VETERANS ADMINISTRATION WADSWORTH MEDICAL CENTER
LOS ANGELES, CALIF.

RADIATION THERAPY SERVICE

The purpose of this Radiation Safety Program is for the protection of personnel and patients from unnecessary exposure to ionizing radiation, and to meet the legal requirements of the United States Government.

SECTION 1 - CALIBRATION OF RADIATION PRODUCING SOURCES

All superficial, orthovoltage and supervoltage X-ray therapy equipment is calibrated at intervals not exceeding one year. In addition, spot checks are performed periodically. Calibration includes, where applicable, the determination of the dose rate of at least one field size for each radiation quality and for each treatment distance used, determination of HVL for each machine filtration, determination of field uniformity, determination of the electrical mechanical and optical alignment and determination of timer error. These calibrations will be performed by the Radiation Physicist.

SECTION 2 - AREA SURVEYS, HOUSING LEAKAGE & ELECTRICAL CHECKS

Area radiation surveys to determine primary and secondary barrier transmission are performed on the initial installation of any radiation source. In addition, a resurvey is performed after

every change in equipment workload or operating condition which might significantly increase the probability of persons receiving more than the maximum permissable radiation dose. Additional head leakage and area surveys are performed at a minimal interval of one year.

The electrical interlocks, emergency off and other electrical safety devices are checked for proper operation at 6 month intervals. These tests will be performed by the Radiation Physicist.

SECTION 3 - SEALED SOURCES WIPE TESTS AND MAINTENANCE OF CO-60 TELETHERAPY SERVICE

All sealed sources of radioactivity including the Cobalt 60 teletherapy unit are wipe tested to check for surface contamination. The maximum allowable contamination per wipe is 0.005 micro-curies (0.05 micro-curies for the Cobalt 60 unit). This is done at six month intervals.

The leak test for the CO-60 unit is performed by wiping a variety of accessible surfaces near the source, source track and collimator with a moist cotton swab. The wipes are counted with a G.M. survey meter calibrated with a .05 uCi CO-60 reference source. An alternate method of counting uses a calibrated well counter (Searle Model 8725). These tests will be performed by the Radiation Physicist.

Servicing, maintenance and repair of the CO-60 teletherapy source will be provided by AECL or their representatives, General Electric.

SECTION 4 - PERSONNEL MONITORING

All personnel involved with the use of radiation sources are provided with film or TLD badges for personnel monitoring. These badges are processed by a commerical company for evaluation of any significant exposure. Pocket dosimeters may be required under special circumstances.

SECTION 5 - EDUCATION OF PERSONNEL

All personnel involved with the use of radiation sources are instructed on the proper use of the radiation source, and on proper radiation safety procedures to be followed during normal and emergency situations.

SECTION 6 - IMPLANT PROCEDURES

A separate procedure sheet is provided for ward and operating room personnel involved with radioactive implants in patients.

SECTION 7 - RECORDS

Pertinent records are kept of the results of all calibrations, surveys, leakage tests, wipe tests, electrical interlock tests and personnel monitoring results.

SECTION 8 - NRC REGULATIONS

A copy of NRC regulations regarding the safe use of radiation producing sources and our NRC teletherapy license are kept by this service for the inspection of all interested parties.

SECTION 9 - FURTHER INFORMATION

Further information may be obtained by contacting the Radiation Safety Officer of the Radiation Therapy Service. Telephone 478-3711 extension 2626.

INDIVIDUALS WHO MAY USE SEALED SOURCES OF RADIATION

Sealed sources of radiation (radioactive material), such as Ra-226 needles and tubes, Ra-222 seeds, I-125 seeds, and Ir-192 seeds, may only be handled by personnel who have had training and experience in the use of the sources and who have had training in appropriate radiation safe procedures. These personnel include the staff radiotherapists and radiation physicist. Residents and therapy technologists may handle these materials provided they have received the appropriate training and are under the supervision of the staff.

Sealed sources of radiation may only be implanted in patients by the staff radiotherapists and by residents under the supervision of the staff radiotherapists. These individuals must have received appropriate training in radiation safety.

9/16/77

LOGGING PROCEDURES FOR SEALED RADIOACTIVE SOURCES FOR IMPLANTATION

1. A log shall be kept documenting the receipt and disposition of all sealed radioactive sources in the Radiation Therapy Service. All log entries shall be made by the radiation physicist or his designated appointee in his absence.

2. For all implanted sources, the log shallindicate the date of receipt, quantity of seeds, ribbons initial activity in mCi or mg Ra eq., manufacturers lot number, mode of disposal, and date of disposal.

3. Upon arrival each container of radioactive material will be monitored at the surface and at one meter. The resultant count rate will be entered into the log.

4. At the time of usage, the log shall indicate the quantity and date removed from storage, location to which the sources are transported, disposition of sources, patient's names, and date and quantity returned to storage. Additionally, the log shall indicate the results of patient and room surveys at implantation and upon removal of temporary implants.

5. A current inventory of all sources shall be kept with quarterly inventories.

6. Use of the sources shall be restricted to individuals authorized in the Radiation Therapy Service procedure manual.

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PROCEDURE FOR HANDLING ISOTOPES FOR PATIENT IMPLANTATION

1. All radioisotopes used in Brachy-therapy in this department (such as Ir-192, I-125, or Rn-222), etc., shall remain in the special lead containers while not in use.

2. All such containers shall be properly labeled and kept in the designated storage areas.

3. Before each implant, the radiation physicist (or his qualified designee) shall prepare the proper isotope in the needed quantity.

4. Such prepared isotope will be transported in the proper sheilded containers from the physics laboratory to the treatment area.

5. Following the insertion of the radioactive sources into patient's tissues, any unused source shall be returned to the physics laboratory in the same container.

6. At least one empty container and a long forceps shall be kept in the patient's room during the whole implantation period. This empty container is for temporary storage of any dislodged radioactive source.

7. After completion of the treatment, all radioactive sources shall be returned to the physics laboratory in their proper lead containers, to be stored until the time of disposal.

8. All handling of radioactive isotopes shall be done by qualified personnel as defined previously.

9. All activities involving the preparation, removal, or transfer of radioactive materials shall be recorded in the isotope log book (see isotope logging procedure).

10. At the time of implantation and upon removal of sources, the patient and his room shall be surveyed and the results posted and recorded in the isotope log.

REVISED: February 17, 1981

EMERGENCY PROCEDURE IN CASE BEAM CONTROL FAILS

If the light signals indicate that the beam control mechanism has failed to terminate the exposure at the end of the preset time (for example; if the red light stays on and/or the green signal does not light up), the source may still be in the "ON" position. The following steps are to be carried out in a calm manner:

FOR THE RADIATION THERAPY TECHNICIAN

1. Open the door to the treatment room.
2. If the patient is ambulatory, direct him to get off the table and leave the room.
3. If the patient is not ambulatory;

   Enter the treatment room but avoid exposure to the useful beam.
   Pull the treatment table as far away from the useful beam as possible.
   Transfer the patient to a stretcher and remove him from the room.
4. Close the door.
5. Turn off the main switch at the control panel.
6. Notify the radiation therapist and radiation protection supervisor at once.

Z. Petrovich, M.D., Chief, Radiation Therapy Service
R. MacKintosh, Ph.D., Physicist

Telephone: 478-3711, ext. 2899

12-27-84

PROCEDURE FOR INVESTIGATION OF MISSING RADIATION SOURCES DURING PATIENT IMPLANTATION

1. Upon discovering a missing source from an implanted patient the person who has made the discovery shall make a quick visual inspection of the patient and the patient's bed and room in an attempt to find it.

2. The radiotherapist in charge of the patient or the radiotherapist on call and the physicist shall be notified immediatley.

3. A visual search and search by radiation monitoring will be carried out by these individuals of the immediate area around and including the patient's room.

4. If the source is not recovered within one hour from the initial discovery, the chief of Radiation Therapy Service shall be notified of the situation. The director of the hospital will be notified by the chief.

5. Appropriate measures will be taken at this point to recover the source. This may involve tracing the possible routes of travel of the source to the source's present disposition.

6. If the source is not recovered within 24 hours a report shall be filed with the Nuclear Regulatory Commission (NRC) as specified in NRC regulations.

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RADIATION MONITORING OF PATIENTS WHO HAVE RECEIVED RADIOACTIVE IMPLANTS

All patients who receive an implant of sealed radioactive sources shall be monitored with a suitable survey instrument (Cutie Pie or GM meter) at the time of implantation and source removal.

At the time of implantation the exposure rate from the patient will be monitored at a distance of 1 meter. The results of this survey will be posted on the patient's room door and patient's chart with the appropriate radiation caution labels.

Upon removal of a temporary implant the patient, room, linens, and trash will be monitored for the presence of any radioactive sources. After certification that all radioactive sources have been removed, the trash and linens may be disposed and radiation precautions lifted.

Patients who have received permanent implants will be monitored prior to their release from the hospital. If the exposure rate is within allowable limits the patient will be instructed on procedures to follow to minimize radiation risk to the general population.

The results of all surveys shall be entered in the patient's chart and recorded in the isotope log book.

REVISED February 19, 1981

Attachment 4

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3.		1 ea	6.25
4.		1 ea	3.25
5.		1 ea	4.50

$29.25

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9/10/79 [illegible]

Nuclear Med [illegible]

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Gen Med Bldg 297
VA Wadsworth Medical Ctr
Wilshire & Sawtelle Blvd
Los Angeles, CA 90073

Dist. Net 9/30/80 [illegible] Brochure

[illegible] Supply 091/134C. Bldg 500, Rm 4404
VA Wadsworth Medical Ctr, Accts Payable
Wilshire & Sawtelle Blvds
Los Angeles, CA 90073

1.	Title 49, CFR Part 100-199 Rev # 022-003-[illegible]-1	1	ea	9.25
2.	Title 10, Nuclear Regulatory Agency [illegible], [illegible] Rev. Jan. 1, 1978	1	ea	5.00
3.	Title 10, Energy [illegible] 200-end, #022-003-[illegible], Rev 1-1-[illegible]	1	ea	6.25
4.	Title 49, Transportation Pts 1-99 #022-003-[illegible]-2	1	ea	3.25
5.	Title 49, Transportation [illegible] 1[illegible]-end #022-003-[illegible]-9	1	ea	4.50

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