

RADIATION ONCOLOGY - BRACHYTHERAPY

PURPOSE

This procedure provides general instructions for developing, maintaining and documenting radiation protection procedures for the use, storage, inventory, and quality control of sources used for brachytherapy; for training of personnel responsible for such use; and for the management of patients treated by brachytherapy.

POLICY

The Radiation Safety Committee is responsible for assuring that each individual who prescribes or uses any form of ionizing radiation in or on humans is properly qualified through training and experience that meets all regulatory requirements. Routine clinical uses of radiation sources for brachytherapy are controlled by qualified radiation oncologists and are not subject to review or approval by the Radiation Safety Committee. Research or experimental applications of radiation to humans must be reviewed and approved by the Human Uses Subcommittee of the Radiation Safety Committee (RPR 40).

Radiation safety procedures for the therapeutic use of sealed radiation sources are prepared, implemented and supervised by the Clinical Medical Physicist (CMP) in the Radiation Oncology Division of the Radiology Department. The CMP submits a copy of all new or revised brachytherapy procedures involving any aspect of radiation protection to the Radiation Safety Officer (RSO) for review and documentation. The RSO submits comments, suggestions or proposed changes to the CMP for action. The RSO reports on the status and acceptability of the procedures to the Radiation Safety Committee at least annually.

MEDICAL EVENTS

Procedures for written procedures and medical events shall be in accordance with the Utah Division of Radiation Control (UDRC) Rules in Chapter R313-32 and based on recommendations in NRC NUREG 1556 Vol. 9. MEDICAL EVENTS (RPR 22) contains a general description of the required procedures.

CONTROL AND STORAGE OF SEALED SOURCES

All radioactive sealed sources used for clinical therapeutic purposes shall be under the control of and stored within the confines of Radiation Oncology, University of Utah Health Sciences Center. The acquisition or storage of such sources by other departments or persons must be approved by the Radiation Safety Committee.

BRACHYTHERAPY SOURCE HANDLING

All procedures for brachytherapy source handling (emergency procedures, source inventory, package receipt, waste disposal, etc.) shall be performed according to procedures in the University of Utah *Radiation Safety Manual and Procedures*, in compliance with the UDRC Rules, and based on recommendations in NUREG 1556 Vol. 9.

BRACHYTHERAPY SOURCE IMPLANTATION

Most temporary implants will be inserted into the patient in the patient's room. Some temporary implants and all permanent implants will be inserted into the patient in the operating room. Implantation procedures shall utilize all necessary precautions in accordance with established radiation safety procedures. These procedures shall be based on the UDRC Rules from Chapter R313-32, recommendations in

NUREG 1556 Vol. 9, and recommendations in applicable NCRP Reports.

TRAINING

The CMP shall ensure that all Radiation Oncology personnel and nurses involved in care of patients undergoing brachytherapy have received appropriate radiation safety training. Documentation of radiation safety training for these personnel shall be provided to the Radiological Health Department.

All staff radiation oncologists involved in brachytherapy must be certified by the American Board of Radiology or meet the training requirements stated in Chapter R313-32 of the UDRC Rules.

Medical physicists, dosimetrists, and radiation therapy technologists who independently handle brachytherapy sources must be certified or have equivalent training and experience.

SUPPORT SERVICES

The RSO shall be responsible for radiological evaluations, leak testing of sealed sources, and calibration of portable survey instruments in accordance with RADIONUCLIDE LABORATORY EVALUATIONS (RPR 50), LEAK TESTING AND INVENTORY CONTROL OF SEALED SOURCES (RPR 51), and PORTABLE RADIATION SURVEY INSTRUMENTS USE AND CALIBRATION (RPR 52).

REFERENCES

National Council on Radiation Protection and Measurements (NCRP), Bethesda, MD:

Precautions in the Management of Patients who have Received Therapeutic Amounts of Radionuclides, 1970

Protection Against Radiation from Brachytherapy Sources, 1972

US Nuclear Regulatory Commission (NRC):

Consolidated Guidance About Materials Licenses Program Specific Guidance About Medical Licenses. NUREG 1556 Vol. 9, 2008

University of Utah, *Radiation Safety Manual and Procedures*, Radiation Procedures and Records

Utah Department of Environmental Quality, Division of Radiation Control:

Radioactive Material License No. UT 1800001 issued to the University of Utah

Utah Radiation Control Rules, Standards for Protection Against Radiation, *Chapter*, R313-15

Utah Radiation Control Rules, Medical Use of Radioactive Material, *Chapter* R313-32