

Manual M-2, Professional Services. Part XI, Radiology Service

**Chapter 2, Radiation Protection
(Paragraphs 2.01 through 2.07)**

Rescinds Chapter 2 dated February 15, 1955 and its changes.

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M-2
PART XI

DEPARTMENT OF MEDICINE AND SURGERY MANUAL

**PROFESSIONAL
SERVICES**



**PART ELEVEN
RADIOLOGY SERVICE**

**VETERANS ADMINISTRATION
WASHINGTON, D.C. 20420**

MARCH 5, 1976

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Part XI, "Radiology Service," VA Department of Medicine and Surgery Manual M-2, "Professional Services," is published for the compliance of all concerned.



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RESCISSIONS

This manual rescinds the following material. (Although this material is being rescinded, it may be retained for informational and guidance purposes insofar as it is not in conflict with the policy and procedures published herein.)

1. COMPLETE RESCISSIONS

a. Manuals

Paragraphs 109 and 110, M 10-6
 ✓ [M-2, part XI, dated February 15, 1955, and changes 1 through 12]

b. Regulations and Procedure

R&P 6797
 R&P 6798
 R&P 6799

c. Technical Bulletins

TB 10A-100
 TB 10A-233
 TB 10A-245

d. All-Station Letters and/or Other Communications Signed by the Administrator, Deputy Administrator, or Chief Medical Director

Date	Subject
February 12, 1951 October 16, 1944	Ward Fluoroscopes Standardization of X-Ray Procedure

e. Interim Issues

II 10-373

2. LIMITED RESCISSIONS

a. Technical Bulletins

TB 10A-247

CHAPTER 2. RADIATION PROTECTION

2.01 RADIATION CONTROL: OBJECTIVE, RULES AND REGULATIONS

The objective of medical use of ionizing radiation is to obtain optimum diagnostic information or therapeutic effect with minimum exposure of the radiation worker concerned and the general public, and to reduce to the minimum all unnecessary irradiation of the patient. To this end the VA establishes and adopts the rules and regulations as outlined in this chapter. These rules and regulations contain the requirements for the protection and safety of all persons at or in the vicinity of ionizing radiation which will be met by all users of such ionizing radiation within the VA system.

2.02 STATEMENT OF POLICY

a. These standards are based on the best information presently available. It is anticipated that these standards will be subject to review and revision periodically as additional information and methods are developed. It is intended that these rules and regulations be compatible with nationally accepted standards.

b. The following published guides, in the most current edition, will be used: Recommendations of the National Council on Radiation Protection and Measurements, i.e., NCRP Reports No. 33, 34 and 39 (NCRP Publications, P.O. Box 30175, Washington, D.C. 20014); U.S. Department of Health, Education and Welfare publications, i.e., Regulations for the Administration and Enforcement of the Radiation Control Health and Safety Act of 1968, DHEW Publication No. (FDA) 75-8003 (Bureau of Radiological Health, Rockville, Maryland 20852) and A Practitioner's Guide to the Diagnostic X-Ray Equipment Standard (Bureau of Radiological Health, Division of Compliance (HFX-40), 5600 Fishers Lane, Rockville, Maryland 20852); Suggested State Regulations for Control of Radiation, prepared by the Council of State Governments in cooperation with the U.S. Atomic Energy Commission (now Nuclear Regulatory Commission) and the U.S. Public Health Service (Bureau of Radiological Health (HFX-460), Food and Drug Administration, 5600 Fishers Lane, Rockville, Maryland 20852); Environmental Protection Agency publications on radiation protection (Environmental Protection Agency, Washington, D.C. 20460).

c. The maximum permissible dose equivalent (MPD) to which the whole body, gonads, blood-forming organs, lens of the eyes, etc., of radiation workers shall receive, will be that presently listed in the National Council on Radiation Protection and Measurements Report, NCRP Report No. 39, and OSHA Standards, 29 CFR 1910.96 - Ionizing Radiation.

2.03 RADIATION SAFETY OFFICER

a. A Radiation Safety Officer will be designated by each facility. The Radiation Safety Officer, whenever possible, will be a qualified expert. With reference to radiation protection, the Radiation Safety Officer will be a person having the knowledge and training to measure ionizing radiation, to evaluate safety techniques, and to advise regarding radiation protection needs (for example, a person certified in radiological physics by the American Board of Radiology, by the American Board of Health Physics, or those having equivalent qualifications). The Radiation Safety Officer will be responsible for radiation safety.

b. Among the specific responsibilities of the Radiation Safety Officer are:

(1) To establish and supervise operating procedures and to review them periodically to assure their conformity with the recommendations described in this chapter.

(2) To instruct personnel in proper radiation protection practices.

(3) To conduct or supervise radiation surveys and source leak tests where indicated and to keep records of such surveys and tests, including summaries or corrective measures recommended and/or instituted.

(4) To assure that personnel monitoring devices are used where indicated and that records are kept of the results of such monitoring. These records will be kept in a suitable organized file.

- (5) To assure that interlock switches and warning signals are functioning and that signs are properly located.
- (6) To investigate each known or suspected case of excessive or abnormal exposure to determine the cause and to take steps to prevent its recurrence.

2.04 PERSONNEL MONITORING

a. The facility will provide a radiation personnel monitoring service approved by the Radiation Safety Officer for each person who (1) operates X-ray, electron beam or particle beam equipment, (2) handles radioactive materials, or (3) works in the environs of a radiation source. Records will document individuals by social security number and where the detector is worn, i.e., body, face, hand, in order to evaluate the readings. When an apron is worn, the monitoring device will be worn at the collar outside the apron. (If more than one device is used, each dose will be identified with the areas where the device was worn on the body.)

b. A preemployment medical examination is recommended for the radiation worker to reveal any physical condition that later might otherwise be attributed to radiation exposure. It will include medical history, radiation exposure history, physical examination, and an initial complete blood count. No persons will be recruited as radiation workers during the period of pregnancy. Subsequent physical examination or blood counts are not indicated unless there is an accidental overexposure as detected by personnel monitoring.

c. An employee will not be granted time off from work as a substitute for adequate protection against exposure to radiation.

2.05 AUTHORIZED USERS

a. No person will intentionally administer radiation to a human being unless such a person is authorized to do so for medical purposes under subparagraphs b and c below.

b. Chief of service of Therapeutic Radiology or Diagnostic Radiology, and in case of use of radioactive isotopes, the Chief of Nuclear Medicine Service, will use radiation for medical purposes within the limits of their responsibility within the VA.

c. A person designated by an authorized user will be permitted to use radiation under the prescription, supervision or direction of the authorized user.

2.06 RADIATION PROTECTION STANDARDS

The radiation protection standards for medical radiation protection within the VA will be as follows:

a. **General.** Applicable or pertinent sections of "Regulations for the Administration and Enforcement of the Radiation Control for Health and Safety Act of 1968", U.S. Department of Health, Education and Welfare.*

b. **Diagnostic and Therapeutic Radiology Equipment, Design and Use.** "Medical X-ray and Gamma-ray Protection for Energies up to 10 MeV—Equipment Design and Use", National Council on Radiation Protection and Measurements, NCRP Report No. 33.*

c. **Diagnostic and Therapeutic Radiology Structural Shielding Design and Evaluation.** "Medical X-ray and Gamma-ray Protection for Energies up to 10 MeV—Structural Shielding Design and Evaluation", NCRP Report No. 34.*

d. **High Energy Including Neutron Radiations.** "Protection Against Betatron—Synchrotron Radiations up to 100 Million Electron Volts", NCRP Report No. 14; "Shielding for High-energy Electron Accelerator Installations", NCRP Report No. 31; "Protection Against Neutron Radiation", NCRP Report No. 38.*

* Or a future revision of the document or future authorized Government agency directive.

- e. **Brachytherapy.** "Protection Against Radiation from Brachytherapy Sources", NCRP Report No. 40.*
- f. **Dental.** "Dental X-ray Protection", NCRP Report No. 35.*
- g. **Radioactive Materials.** "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure", NCRP Report No. 22; "Safe Handling of Radioactive Materials", NCRP Report No. 30.*
- h. **Criteria for Radiation Protection.** "Basic Radiation Protection Criteria", NCRP Report No. 39.*
- i. **Emergency and Accidental Exposure.** "Exposure to Radiation in an Emergency", NCRP Report No. 29.*
- j. **Ionizing Radiation.** OSHA Standards, 29 CFR 1910.96.*

2.07 RADIATION PROTECTION SURVEY

- a. A radiation survey will be accomplished at the time X-ray equipment is installed, at least once a year thereafter, and at the time the equipment is modified, by a qualified expert in radiation physics. Records of these surveys will be retained and disposed of in accordance with DM&S Records Control Schedule 10-1.
- b. X-ray equipment will be recalibrated at least once a year, or whenever there is any change in equipment.

* Or a future revision of the document or future authorized Government agency directive.