



AADMRT ONLINE

Limited Permit X-Ray Technician Program

Revised as of 12/27/2013 - This supersedes all previous versions submitted

LPXT : Dental Category

Radiation Protection Program

This program is in accordance with the statutes found in the Health and Safety Code, Division 104-Environmental Health, the regulations found in the California Code of Regulations (CCR), Title 17, Div. 1, Chapter. 5, Sub Chapters 4 and 4.5. 17 CCR 30253 which incorporates by reference the federal regulations specified in Title 10, Code of Federal Regulations (CFR), Part 20.

Table of Contents

Introduction

Administrative Responsibilities

ALARA Program

Dosimetry Program

Responsibilities of Badge Users

Procedures for addressing a declaration of pregnancy

Machine Registration

Clinical Affiliated Site Map

Calibrations and Maintenance

Radiological Controls

Entry and Exit Controls

Disposal of Equipment

Posting

Emergency Situations

Emergency Exposure Situations

Record Keeping and Reporting

Reports to Individuals

Radiation Safety Training

Internal Audit Procedures

I. Introduction

The California Department of Public Health, Radiologic Health Branch (RHB) oversees the use of radioactive materials and radiation producing machines in California. The Radiation Protection Program has been established to inform the RHB, and AADMRT Online Staff and students of the school policies for machines capable of producing ionizing radiation. The purpose of the Radiation Protection Program is to ensure all procedures are conducted in such a manner that protects health, eliminates risk to life and property, and keeps radiation exposure as low as reasonably achievable (ALARA).

II. Administrative Responsibilities

Radiation Safety Committee (RSC)

The AADMRT online Radiation Safety Committee (RSC) directs the Radiation Protection Program ensuring proper enforcement of its policies and an efficient internal audit process. The RSC is ultimately responsible for the efficiency of the program and reports. The RSC has the following members:

1. CEO/Program Director/Administrative Radiation Safety Officer (CEO)
Ultimately responsible for the safety of all radiographic procedures materials and radiation-producing machines on campus and the compliance of each Clinical Affiliated Site (ACS). The CEO has the power to appoint members of the Radiation Safety Committee (RSC). The CEO delegates responsibility to the Radiation Safety Officer(s) of each ACS.
2. AADMRT Board Member
Responsible for ensuring that the AADMRT Online Radiation Safety and Protection Program maintains policies within the philosophy of AADMRT and its members.
3. Alternate RSO
Faculty member whom in the absence of the Administrative RSO assumes all responsibilities of the Administrative RSO as outlined in this program.
4. ACS Radiation Safety Officer(s)

Radiation Safety Officer (RSO) - Administrative and ACS

The "Administrative RSO" is responsible for enforcing the compliance of the AADMRT School and each ACS with the AADMRT Online Radiation Protection Program. He or she shall be responsible to the CEO for the safety of the institution and for the

execution of all radiation Safety and Protection directives of the RHB. The RSO shall have direct access to the CEO by submitting reports at regular meetings.

Each ACS must establish their own RSO. That “ACS RSO’s” authority is derived from the obligation of the CEO and Administrative RSO to ensure a safe environment for students, staff and visitors in conformance with State and Federal radiation control regulations.

The Administrative RSO and ACS RSO are responsible for informing all individuals working in or frequenting any portion of a controlled area; instructing such individuals in the health protection problems associated with exposure to radiation, in precautions or procedures to minimize exposure, and in the purposes and functions of protective devices employed; instructing such individuals in, and instructing them to observe, to the extent within their control, the applicable provisions of federal and state regulations and license conditions for the protection of personnel from exposures to radiation occurring in such areas; instructing such individuals of their responsibility to report promptly to the RSO any condition which may lead to or cause a violation of federal and state regulations or license conditions or unnecessary exposure to radiation, and of the inspection provisions of Section 30254; instructing such individuals in the appropriate response to warnings made in the event of any unusual occurrence or malfunction that may involve exposure to radiation; and advising such individuals as to the radiation exposure reports which they may request pursuant to this section.

Duties:

- Annual review of the Radiation Protection Program
- Ensuring the requirements of this program are met
- Reviewing all personnel monitoring dosimetry reports within 10 days of receipt to ensure the occupational dose limits specified in Subpart C of Title 10, Code of Federal Regulations, Part 20 (10 CFR Part 20), incorporated by reference in section 30253, are not exceeded
- Overseeing reporting of student accidents, incidents, or errors related to radiation safety
- ensuring compliance with the applicable requirements of subchapter 4.0 (commencing at section 30100) of this chapter for reportable sources of radiation
- Monitor enforcement of and compliance with dosimetry program
- Verify that each clinical site used by the school has an RPP as required by 10 CFR Part 20.1101, as incorporated by reference in section
- Annual review of adherence to the ALARA Program
- Ensuring the enforcement of the ALARA Program and all of its components

III. ALARA Program

To ensure radiation exposure is as low as reasonably achievable (ALARA), AADMRT Online enforces an ALARA program. This program has four components: Dosimetry Program, Calibrations and Maintenance, Machine Registration and Affiliated Clinical Site Map. This program is designed to be in compliance with 10 CFR 20.

The Administrative RSO is required to enforce and monitor the dosimetry program. Appropriate dosimetry is provided by AADMRT Online to all students and staff. The Administrative RSO shall advise each student and ACS RSO monthly, during procedural training, of the student's dose as shown in records maintained by AADMRT Online pursuant to title 10, Code of Federal Regulations, part 20, (10 CFR 20), section 20.2106 as incorporated by reference in section 30253. The Administrative RSO shall provide a complete report to each student and faculty member pursuant to section 20.1502, incorporated by reference in section 30253, of the dose received in that school term if:

1. The individual's occupational dose exceeds 100 mrem total effective dose equivalent or 100 mrem to any individual organ or tissue; or
2. The individual requests his or her complete dose report.

10 CFR 20 determines the following annual effective dose limits for occupational workers:

(1) The total effective dose equivalent being equal to 5 rems (0.05 Sv); or The sum of the deep-dose equivalent and the committed dose equivalent to any individual organ or tissue other than the lens of the eye being equal to 50 rems (0.5 Sv).

(2) The annual limits to the lens of the eye, to the skin of the whole body, and to the skin of the extremities, which are:

- (i) A lens dose equivalent of 15 rems (0.15 Sv), and
- (ii) A shallow-dose equivalent of 50 rem (0.5 Sv) to the skin of the whole body or to the skin of any extremity.

Doses received in excess of the annual limits, including doses received during accidents, emergencies, and planned special exposures, must be subtracted from the limits for planned special exposures that the individual may receive during the current year (see §20.1206(e)(1)) and during the individual's lifetime (see §20.1206(e)(2)).

AADMRT Online has established a one year limit of ten percent (10%) of the allowed limits as determined by 10 CFR 20. This is prorated to the total number of months

spent in the procedural training portion of the curriculum. The ALARA program also extends to the public and AADMRT Online's commitment to keeping radiation exposure as low as reasonably achievable and as specified in 10 CFR 20.

ALARA - Dose Limit Review and Investigation

If a dosimetry report shows that radiation exposure has exceeded 10% of the annual occupational dose limit as defined by this program in one year; or 1/12 of 10% of the annual occupational dose limit as defined in this program:

A) Radiation Safety Committee will conduct an internal review of the report

B) Notification will be sent to all students at the ACS that their procedural instruction is postponed until the investigation is closed.

C) Radiation Safety Committee will determine all necessary actions to inhibit any further overexposure to the student, other students, faculty, or the public

D) The AADMRT Online RSC will submit a report to the AADMRT Board and Radiologic Health Branch

E) Once approval is received from the AADMRT Board and the RHB, procedural instruction can resume.

Dosimetry Program

It is the responsibility of the Administrative RSO to maintain a current subscription with a dosimetry monitoring service provider for all faculty and students in ACS. A list of approved providers can be found in the AADMRT Online Service Directory in the Student Handbook.

Responsibilities Of Badge Users

1. Your dosimetry badge must be worn at all times when you are working with or in the vicinity of sources of radiation.
2. The badge reading is a legal record and must reflect occupational exposure only. Therefore the badge shall be worn only by the person to whom it was assigned, shall not be tampered with or experimentally irradiated, and shall not be used to measure any radiation exposure you may receive as a medical patient.

3. Monitoring badges are issued at monthly or quarterly exchange frequencies. Badges are distributed and collected by ACS LPXT supervisors. It is your responsibility to exchange your badge on time with your badge representative.
4. Persons required to be badged must have complete records of their occupational exposure for the current year, i.e. no "gaps" are allowed in their personnel dosimetry records. If a badge is lost, a replacement badge must be obtained.
5. Badges should be worn on chest, collar, or belt so as to indicate "whole body" exposure.
6. Do not leave badge in direct sunlight or near a source of heat. At the end of the work day badges should be left in a location where they will not be exposed to radiation.
7. If you work at locations outside AADMRT Online where you receive occupational exposure to radiation, you must be badged by all employers. Notify the Radiation Safety Officer at AADMRT Online and at the other locations. The maximum permissible occupational dose limits apply to the sum of the doses received at all locations.
8. Examine your personal dosimetry reports on a regular basis to assure that your readings are ALARA (As Low As Reasonably Achievable).

Procedures for addressing a declaration of pregnancy

See Student Handbook (pregnancy)

Machine Registrations

In order to establish an Affiliation Agreement each ACS Supervising LPXT must submit current RHB registrations to AADMRT Online RSC. All machines used in a ACS must be properly registered with the RHB. A current copy of the FAC Registration of Reportable Sources of Radiation must be submitted to the AADMRT Online RSC. All information must be current as requested in form RH2261 issued by the RHB.

Clinical Affiliated Site Map

All approved ACS must maintain and conspicuously post a ACS map which meets the requirements of this program as stated in Section IV.

Calibrations and Maintenance

Each ACS is required to maintain calibration and maintenance records and manuals for each machine in the facility. LPXT Supervisors of each ACS are responsible for adhering to the calibration manual for each machine.

Two-Dimensional Machines

Two-dimensional machines require that the technician monitors machine performance during every procedure. If the technician receives an error message or machine failure, they must consult the calibration manual and contact a maintenance provider.

Three-Dimensional Machines (CBCT)

CBCT machines require daily checks and weekly QA scans. Each ACS must maintain and submit monthly the records of daily checks and weekly QA scans. If the technician receives an error message or machine failure, they must consult the calibration manual and contact a maintenance provider.

IV. Radiological Controls Program

The Radiological Controls program is a guide to the safety and proper postings of all clinical affiliated sites. All requests to add a clinical affiliated site will be evaluated based on meeting the criteria of this program and the entire Radiation Protection Program. It is the responsibility of the Administrative RSO to oversee and enforce the following aspects of this program.

Entry and Exit Controls

Entry and exit from controlled areas must be adequate to ensure radiation safety. Design of emergency escape routes shall comply with applicable building codes. All clinical affiliated sites must submit to each student, a map of the clinical affiliated site with emergency escape routes clearly marked.

For all emergency procedures see section V.

Disposal of Equipment

The ACS RSO at all ACS shall report in writing to the RHB the sale, transfer, or discontinuance of use of any reportable source of radiation. See the Guidance for Disposal of X-ray Machines available.

<http://www.cdph.ca.gov/programs/Pages/RadiologicHealthBranch.aspx>

Postings

All ACS must ensure rooms containing as the only source of radiation are posted with a sign or signs that read "CAUTION X-RAY".

- Conspicuously post:
 1. A current copy of the 17 CCR, incorporated sections of 10 CFR 20, and a copy of operating and emergency procedures applicable to work with sources of radiation (If posting of documents specified above is not practicable, the registrant may post a notice which describes the document and states where it may be examined.)
 2. A current copy of Department Form RH-2364 (Notice to Employees) in a sufficient number of places to permit individuals working in or frequenting any portion of a restricted area to observe a copy on the way to or from such area.
 3. Any notice of violation
- Conspicuously post:
 1. A copy of applicable licenses for all faculty
 2. A copy of operating and emergency procedures applicable to work with sources of radiation.
- Assure that documents, notices, or forms posted pursuant to this section shall appear in a sufficient number of places to permit individuals engaged in training students under the license to observe them on the way to or from any particular work location to which the document applies, shall be conspicuous, and shall be replaced if defaced or altered.

V. Emergency Situations

Each ACS must develop an emergency procedures manual. This manual is to be available in hard copy to all those working in a clinical affiliated site. The manual should be developed with but not limited to the following criteria:

1. Emergency stop procedures with visual aids, for all sources of radiation.
2. Location of first aid kit
3. Location of Fire Extinguisher with current expiration date.
4. Visual aids for emergency exit route
5. Map of clinical affiliated site with emergency exit routes clearly marked

Emergency Exposure Situations

- FIRE - Report Immediately - call 911

- Malfunctioning X-ray machine
 - Hit emergency shut-off button
 - Turn off power switch
 - Report incident by phone to AADMRT Online administrative office
p. 650.323.0204
- Excessive Exposure
 - Evaluate exposure to patient
 - Call 911 if medical attention is needed
 - Fill out the 'Excessive Exposure Report'

For all of the above emergency situations AADMRT Online administration will notify the RHB using the following information:

FOR RADIOLOGICAL EMERGENCY ASSISTANCE (24/7), PHONE
1-800-852-7550

To contact the Radiologic Health Branch, phone (916) 327-5106 or go to:
<http://www.cdph.ca.gov/programs/Pages/RadiologicHealthBranch.aspx>

VI. Record Keeping and Reporting

Responsible Persons

The Administrative RSO is responsible for all record keeping and reporting to AADMRT Online administration.

Record Keeping - Logs

All Radiation Protection Program logs will be maintained on Google Apps under the AADMRTonline.org private domain. The following logs are required:

Student Dosimetry Log
Instructor Dosimetry Log
Pregnant Student Dosimetry Log

Reporting Procedures

The Administrative RSO must submit all monthly dosimetry reports to AADMRT Online administration, faculty, and students by updating the logs listed above.

All dosimetry reports received must be scanned and uploaded to the dosimetry report folder in the administrative database.

VII. Reports to Individuals

Monthly Reports

AADMRT Online maintains monthly dosimetry reports from the dosimetry monitoring service provider. The dosimetry reports received from the dosimetry monitoring service provider will be reviewed within 10 days of receipt. These reports are made readily available to all students, faculty, and employees of each ACS.

Year-End Report

AADMRT Online produces a year-end report for each student and faculty member, ensuring that less than 10% of the annual dose limit has been received.

VIII. Radiation Safety Training

Radiation safety training is administered in the first 6 weeks of the course in the online classroom sessions. Additional radiation safety training occurs during the lab sessions.

IX. Internal Audit Procedures

All students and faculty are monitored for radiation on a monthly basis using dosimeter badges. The reports are sent by the administrative RSO to the ACS and reviewed by the ACS Radiation Safety Officer for minimum and maximum exposure level every month. After reviewing the documents they are initialed and dated by the ACS RSO and uploaded to the administrative database. Each ACS RSO must input monthly readings into the 'Dosimetry Logs' google apps folder.

The Radiation Protection Program is reviewed annually along with each of its components. All documents are reviewed and revised by the Radiation Safety Committee (RSC).

The CEO determines who will perform inspections and/or audits and present findings to the RSC for review of documents and the policies and procedures used to meet the requirements of the Radiation Protection Program

The audits of radiation monitoring records are done every month with review of the personal monitoring reports. Reports are posted in the 'Dosimetry Logs' (online access) for review by the students. Additionally, the Policies and Procedures are reviewed and revised annually as needed.

At the end of every school term the RSC meets to review the Radiation Protection Program.

The CEO or Administrative RSO can call for a inspection and/or audit of any ACS at his or her own discretions, by recommendation of the AADMRT board, or by recommendation of the RHB.