

San Diego Mesa College

Allied Health Department

Radiation Protection Program (RPP)

Policies & Procedures

REVISION: 04/2021

Allied Health – Radiologic Technology
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INTRODUCTION

San Diego Mesa College provides three educational programs that use x-radiation sources and are all registered under one facility number (24917). The three programs are Radiologic Technology, Dental Assisting and Veterinary Technology.

ALLIED HEALTH RADIATION PROTECTION PROGRAM (CDPH-RHB Facility #24917)

Philosophy - All students will be expected to perform instructor-supervised experiments using ionizing radiation.

1. Organization and Administration

- a. The Radiation Safety Officer (RSO), Kimberly Mills, M.S., R.T. (R) (CT) CRT, kmills@sdccd.edu, 619-388-2666 oversees the Radiation Protection Program and maintains all documentation for state and federal compliance, along with the RSO Alternate, Jill Chagnon, B.S., R.T. (R) (M) CRT, jchagnon@sdccd.edu, 619-388-2283.
- b. The Program Directors of Radiologic Technology, Dental Assisting and Veterinary Technology work with the Radiation Safety Officer and RSO Alternate ensuring required reporting to the CDPH-RHB in compliance with CCR Title 17.
- c. The Radiation Safety Officer and RSO Alternate accept the responsibilities of state and federal compliance. The signed document is on file for review in the RSO's office.

2. Radiation Safety Policy

OSHA and other safety guidelines are followed regarding radiation safety in the classroom and in the clinical setting. Personal Whole-Body Radiation Dosimeters for radiation monitoring are furnished for all students performing radiologic exams and making radiation exposures. Students pay \$14.50 for the cost of the dosimeters each fall and spring semester. The course fee is associated with the fall and spring Directed Clinical Practice courses for each year of the program. Dosimeters must always be worn in clinical and in class or lab where radiation exposure is possible. Dosimeters will be monitored on a monthly basis.

The purpose is to inform students, faculty and administrators of procedures that must be followed to ensure radiation safety through the proper use and monitoring of radiation exposure.

- a. Radiation Monitoring
 - Personal Radiation Dosimeters for radiation monitoring are furnished for all students making radiation exposures.
 - Students pay \$14.50 for the cost of the dosimeters each fall and spring semester. This fee is part of the DCP course (fall & spring) each year.
 - The dosimeters are considered part of the uniform and should always be worn around radiation emitting machines.
 - The dosimeter must be worn during all radiation exposures in lab and in the

clinical setting.

- All students who have declared pregnancy will be issued a second fetal badge, which must always be worn at the level of the waist.
- A \$50 replacement fee, plus shipping and handling, must be paid to Student Accounting before student receives new dosimeter and the student may not attend clinical without the new dosimeter.
- Dosimetry reports will be online for the student to view.
- Students must upload/read their radiation dosimeter at the end of every month.
- Each month, the dosimetry results will be reviewed by the RSO within 10 days from receipt of dosimetry badge upload.
- Students have access to review their radiation dosimetry reports.
- Students can retrieve a final dose report through their Radiation Detection Company account or contact the RSO for a printed and/or electronic final dose report.
- Final dose reports are submitted to any employer requesting a copy.

b. ALARA Program for All Student Exposure Limits

- The following levels of exposure for the ALARA program have been established and are listed below.
- If a student exceeds the **Level I** exposure limit in a month, the student will receive verbal advising from their Program Director.
- If a student exceeds the **Level II** exposure limit in a month, the student will meet with the RSO to determine the cause of the high exposure and counsel the student in measures to reduce their radiation exposure.

<u>Region</u>	<u>Level I</u>	<u>Level II</u>
Whole body (monthly)	2.5 mSv	5 mSv
Pregnancy monitor (monthly)	0.25 mSv	0.5 mSv

c. Excessive Radiation Exposure

- The RSO will monitor all dosimetry reports.
- If a student's dosimeter reading exceeds the limit, the RSO will investigate the cause for excessive radiation exposure readings.
- The investigation may include interviews with the student, clinical site and other individuals relevant to the investigation.
- All previous exposure readings for the student and clinical facility will be re-evaluated.
- The investigation is to evaluation why the exposure readings are elevated.
- A report of findings from interviews and all other sources will be shared for corrective action and placed in the student's file.
- The counseling form will be used to document the event and placed in the student's file.
- If corrective action of the student is not implemented and dose readings do not decrease, the student will be removed from the program.

d. Radiation Safety Procedures for the Declared Pregnant Student

The following radiation procedures must be observed:

- Continue to wear your whole-body dosimeter on the outside of an apron at the collar.
- Wear a second dosimeter, fetal badge, at the waist level.
- If wearing a lead apron, the fetal dosimeter is to be worn under the lead apron at the waist level.
- Wear a wrap-around shield or a lead apron and a half apron wrapped around the back.
- Keep maximum distance between yourself and the x-ray tube and the patient.
- Review the monthly fetal dosimeter report with the RSO each month.

3. ALARA – As Low As Reasonable Achievable

- a. Any unauthorized exposure or activation of equipment will result in the student's dismissal from the program.
- b. Any individual experiment or project will be reviewed and authorized by the faculty member or clinical instructor first.
- c. Students are required to exercise sound radiation protection practices at all times. At no time may a student participate in a procedure utilizing unsafe protection practices.
- d. Students shall practice "as low as reasonably achievable" (ALARA) guidelines, with respect to themselves, peers, healthcare personnel and patients.
- e. Students are not allowed to expose any human being or animal to the direct x-ray beam while in the radiography school laboratory. Students in the Dental Assisting and Veterinary Technology Programs must be under the direct supervision of a qualified practitioner while making exposures to humans or animals.
 - All students engaged in such practices must work under the direct supervision of a qualified practitioner.
- f. Phantoms and positioning devices are provided for campus laboratory experiments, as necessary.
- g. Students must remain behind the primary barrier for all exposures, except:
 - When wearing protective lead apparel for directly supervised fluoroscopic laboratory experiments.
- h. Students are required to wear a lead apron with their dosimetry device worn at the collar outside the apron for fluoroscopic experiments.
- i. The program provides lead glasses, aprons, gloves, gonadal shields and mobile shields for protective use.

4. Dosimetry and Reports to Individuals

a. Occupational Workers

- The programs utilize Radiation Detection Company (www.radetco.com) as a provider of dosimetry devices and analysis.
- Students and instructors are provided a dosimeter by the program and are mandated to wear them during energized laboratory experiments and clinical training hours, with their dosimetry device worn on the collar outside the apron.
- Each month the dosimetry results are reviewed by the RSO within 10 days from receipt of uploaded dosimeters.
- Dosimetry records are on file in the RSO's office or the RSO Alternate's

office and available online for review. All dosimetry records are kept indefinitely, according to CA Code of Regulations (CCR), Title 17.

- Each student and instructor are subject to the occupational exposure limits and the requirements for the determination of the doses which are declared in CCR, Title 17.
- Occupational dose limits for minors (under 18 years of age):
 1. Total effective dose of 0.05 Sv (0.5 rems) or effective dose of 0.15 Sv (1.5 rems) to the eye or 0.5 Sv (5.0 rems) to the skin or extremities.
- Occupational dose limits for adults (18 years of age or older):
 1. Total effective dose of 0.05 Sv (5.0 rems) or effective dose of 0.15 Sv (15 rems) to the eye or 0.5 Sv (50 rems) to the skin or extremities.
- Requests for copies of dosimetry records will be accommodated within 30 days by the Radiation Safety Officer.

b. Pregnant Workers

- Definition of declared pregnant worker: A woman (female student) who has voluntarily informed her employer (or program director) in writing of her pregnancy and estimated due date.
- The student is not required to notify the program, nor will she be dismissed from the program if she is pregnant.
- A student may withdraw their written declaration of pregnancy at any time.
- Any student who declares her pregnancy in writing to the Program Director and who desires to continue the program will be required to wear an additional fetal dosimetry device and continue active and direct participation in all laboratory experiments while practicing proper radiation safety. If she prefers to discontinue and defer to the next year's student cohort, she may do so. She may defer only once.
- The student is encouraged to talk to the Program Director or RSO about any questions or concerns she may have.

5. Area Monitoring and Radiological Controls

a. Area Radiation Monitoring

- The entrance to each x-ray room is marked with signage, "**Caution: X-ray**".
- Conspicuously posted in the energized laboratory area are the following:
 1. Operating and emergency procedures applicable to radiation sources
 2. A current copy of Department Form RH-2364 (Notice to Employees)
 3. Any notice of violation(s) or any order pursuant to the applicable regulations (immediately)
 4. Current copies of user licenses
- Proper signage is maintained by the RSO or Program Director.
- Current copies of CCR Title 17, incorporated sections of 10 CFR 20 is available in the Radiation Safety Officer's office.

b. Instrument Calibration and Maintenance

- All experiments will be conducted on CDPH-RHB inspected x-ray

machines, which are inspected annually using instruments and procedures compliant with CCR Title 17.

- The San Diego Community College District maintains service contracts for all x-ray machines and utilizes these contracts as necessary to correct any potential problems.
- Registration and physicist certification of all machines are available for review in the RSO/ Radiologic Technology Program Director's office.
- Operator manuals for each machine are available for review in the RSO or Program Director's office.
- The disposal of x-ray machines is made in compliance with CCR Title 17.

c. Quality Assurance/Quality Control

- The program maintains all records regarding performance evaluations, acceptance testing and radiation safety of all x-ray machines.
- The program maintains required QC testing equipment in proper working order, including records of calibration frequency and type.
- Records are kept at least three years.

6. Emergency Exposure Situations

- a. A student is required to notify the Radiation Safety Officer in writing when a situation arises that the student knows may affect the quality of the radiation monitoring report.
- Examples may be leaving it attached to a lead apron or lab coat which has been stored in a radiographic/fluoroscopic room, passing it through an airport security (radiation) system or wearing it during a medical procedure.
- b. If a student receives an excessive dosimetry reading, a consultation with the Program Director and Radiation Safety Officer is required.
- An excessive dose will be considered by the program as one that appears out of usual range for a student or faculty member's usual practice or exceeds regulatory limits.
 - The RSO will investigate to determine the reason (i.e. student practices, equipment or erroneous dosimeter handling or reading). The student will be counseled regarding radiation safety practices and their employer (if applicable) notified.
 - The student will be provided a written conference form for their record; a copy will also be kept by the program for a minimum of five years as part of the student record.
 - The CDPH-RHB will be notified, via telephone and in writing, of the event:
 1. Within 24 hours for any exposure that causes or is likely to cause a total effective dose of 0.05 Sv (5 rems) or effective dose of 0.15 Sv (15 rems) to the eye or 0.5 Sv (50 rems) to the skin or extremities.
 2. Immediately for any exposure that causes or is likely to cause a total effective dose of 0.25 Sv (25 rems) or effective dose of 0.75 Sv (75 rems) to the eye or 2.5 Sv (250 rems) to the skin or extremities.
 3. Reports will contain the caller's name and call-back telephone

number, description of event with exact location, date and time, the quantities and physical form of the licensed material involved, manufacturer and model number of any equipment that failed or malfunctioned, any personnel radiation exposure data available and corrective actions taken or planned.

The CDPH-RHB address is P.O. Box 997414, MS 7610, Sacramento, CA 95899-7414. The telephone number is (916) 327-5106.

- If a student has been found to have willfully mishandled or influenced the reading on another student's dosimeter, the student may be dismissed from the program and/or reported to the appropriate agencies.

7. Record Keeping and Reporting

- a. It is the responsibility of anyone to promptly report to the Radiation Safety Officer and/or Program Director any condition which may lead to or cause a violation of department regulations, inspection provisions, or an unnecessary exposure to radiation.
 - The Radiation Safety Officer will notify the CDPH-RHB, via telephone and in writing of the event within 24 hours, according to Title 17.
 - Individuals may choose to report the situation or incident directly to the CDPH-RHB.
 - The CDPH-RHB address is P.O. Box 997414, MS 7610, Sacramento, CA 95899-7414. The telephone number is (916) 327-5106.

8. Radiation Safety Training

a. Occupational Workers

- The program provides training on each x-ray machine to each student and faculty. Documentation of this training is archived in the Program Director's office.
- No one is allowed to operate the energized lab equipment on campus without prior training on that equipment, received under the direct supervision of a trained radiology instructor.
- Once training is complete, if the operator has any doubt as to the function or performance of a machine, they should stop and consult a faculty member or clinical instructor.
- The program provides education to each operator as to the health risks of radiation exposure, methods to comply with ALARA and related state and federal regulations.

b. Non-Occupational Workers

- The Radiation Safety Officer shall work together with campus Facilities personnel to provide information and/or training for working around radiation equipment.

9. Internal Audit Procedures

- a. The Radiation Safety Officer maintains an annual, formal assessment of dosimetry results and compliance and reports the data to the Program Director.
- b. The Program Directors maintain an annual, formal audit of all other aspects of

the Radiation Protection Program pertinent to their programs. Items include:

- Inspections and results
 - QA/QC
 - Training
- c. Internal audit data is available to the CDPH-RHB, program advisory committees and the public, upon request and in compliance with FERPA.

CLINICAL AFFILIATES

1. Radiation Protection Programs (RPP's) are required for all licensees of radiation sources, including clinical affiliates (10 CFR 20, Section 20.1101). RPP's are required for each facility's annual machine registration with the CDPH-RHB.
2. The Allied Health Programs are required to verify the current status of radiation machine registrations of each clinical affiliate when applying for a Clinical Affiliate Site (CAS) certificate and submit a copy of the current machine registration with application to the CDPH-RHB
3. Students are provided a detailed orientation to the Allied Health Radiation Protection Program upon admission to the program.
4. Students are oriented to their clinical affiliate RPP through their clinical instructors.

CLINICAL SUPERVISION OF STUDENTS

1. Students training at clinical affiliates may assist or perform radiologic examinations on living human beings or animals, when ordered by a licentiate, and under the direct supervision of a qualified, licensed practitioner. Students maintain direct supervision until competencies have been achieved and then perform exams under indirect supervision after competencies have been achieved.
2. Clinical Instructors have the overall responsibility of supervision compliance at their site and report student radiation safety issues to the Program Directors and their own department administrators.

PROGRAM RESPONSIBILITIES

1. The program will provide a copy of the Allied Health Department Radiation Protection Policies to each student enrolled in the programs.
2. The program will provide the most current and applicable state-approved curriculum to the student.
3. The program will provide the most current and applicable state-approved curriculum to the instructor and will facilitate academic and equipment resources as necessary and applicable.
4. Upon successful completion, the program will provide certification to the student to be used with their CDPH-RHB application for appropriate licensures.
5. The program will keep copies of student records for a minimum of five years.
6. The program will provide notification to the CDPH-RHB within 30 days, in writing any changes in:
 - Facility location, telephone number
 - Course offerings that no longer meet Title 17 requirements for sections 30421, 30422, 30423, 30424, 30425 or 30427.2
 - Program director, clinical coordinator
 - Clinical affiliation agreements that no longer meet Title 17 requirements for section 30415

- Accreditation status by Joint Review Committee of Education in Radiologic Technology (JRCERT)
 - Discontinuance of use of an affiliated clinical site
7. The program will comply with all applicable laws of CDPH-RHB Title 17.

INSTRUCTOR RESPONSIBILITIES

1. The instructor will read and enforce the policies and procedures contained in this manual.
2. The instructor will present the most current and applicable state-approved curriculum to the student.
3. The instructor will require the student to attend all state-mandated didactic and laboratory sessions. The instructor will provide make-up opportunities within the required and available parameters of the program.
4. The instructor will not give the student a passing grade if the student has not attended all the required hours and completed all of the required laboratory assignments, as outlined by the CDPH-RHB.
5. The instructor will provide student attendance and performance data to the Program Director who will then issue certification to the student, if appropriate.
6. The instructor will comply with all applicable laws of CDPH-RHB Title 17.
7. The instructor will attend training for all equipment utilized by the program.

STUDENT RESPONSIBILITIES

1. Students are not allowed to hold a patient or image receptor for any exposure.
2. Students must ensure a ratio of 1:1 is being met, meaning one student with one supervising technologist.
3. Students are required to complete a radiography device orientation checklist prior to first use in the clinical setting for each radiographic unit, including mobile devices.
4. Once a student obtains competency, the student may have indirect supervision, **EXCEPT** when performing portable exams, fluoroscopy and c-arms in the operating room (OR). These exams always require students to be directly supervised .
5. Students working in fluoroscopy and c-arm procedures in the operating room (OR), will only work with a state licensed technologist.
6. Students must have a fluoroscopy licensed technologist directly supervising them when selecting technical factors, positioning the fluoroscopic unit or making any type of fluoroscopic exposures.
7. Students will document every fluoroscopy exam with the technologist name, license number and initials of supervision, while working in fluoroscopy.
8. Student are required to complete fluoroscopy device orientation checklist prior to first use in the clinical setting or delayed use (more than a month lapse in time) of the fluoroscopy device. This must be documented for each piece of fluoroscopic equipment at each facility.
9. The student will read and comply with the policies and procedures contained in this manual.

REGULATORY CONTACT INFORMATION

CA Dept. of Public Health – Radiation Health Branch
 P. O. Box 997414, MS 7610
 Sacramento, Ca 95899-7414

(916) 327-5106
www.cdph.ca.gov/rhb

The state regulations can be found in Title 17 (Public Health) of the California Code of Regulations: <http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcom>
The federal regulation can be found in 10 CFR 20 <http://www.gpoaccess.gov/cfr/>