

Standard Operating Procedure: Radiology

1. Purpose

This SOP is created to ensure safety, consistency, regulatory compliance, and effective training of persons engaged in the taking of x-rays.

2. Scope

All staff in the clinic.

3. Reporting Concerns

Concerns about radiation exposure, radiology practice, or general safety concerns, are reported to ____insert role____. *(consider choosing a contact that staff will be comfortable approaching, has training, Health and Safety person/committee)*

If concerns are not adequately addressed, concerns can be directed to:

- **Workplace Safety and Health**

Winnipeg: 204-957-SAFE (7233)

Toll-free: 1-855-957-SAFE (7233)

<https://www.gov.mb.ca/labour/safety/index.html>

- **MVMA**

www.mvma.ca

204-832-1276

- **Cancer Care**

<https://www.cancercare.mb.ca/Research/medical-physics/radiation-protection-services>

Radiation Protection, CCMB

Room ON2118

675 McDermot Ave

Winnipeg, MB R3E 0V9

Phone: 204-787-4145

Fax: 204-775-1684

CCMBMPX-rayCompliance@cancercare.mb.ca

4. Procedure (General)

Use of X-ray Machine

- Radiographs shall be of diagnostic quality.
- Technique charts are located as follows:
 - o *Insert machine name, technique chart location(s)(wall, in computer program, etc)*
 - o *Insert machine name, technique chart location(s)(wall, in computer program, etc)...*
- Technical information needed to operate the machine are as follows: *The practice may wish to include the following information*
 - o *How to use machine*
 - o *How to use computer program*
 - o *Usernames- passwords*
- Safety- Each staff member will uphold safe x-ray use by:
 - o Ensuring that all non-protected people are aware to stay away from the area where x-rays are taken.
 - o Ensuring monitoring badges, aprons, thyroid protectors, gloves and other protective equipment as needed are worn by all persons in the room when x-rays are taken.
 - o Ensuring that there is no person is in direct contact with the radiographic beam.
 - o Ensuring that a copy of provincial X-Ray Safety Regulation is posted in the x-ray area. (https://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=341/88%20R)
 - o *Insert additional clinic rules here.*
- *Clinic may add clinic specific information that should be considered when taking an x-ray here*

Portable x-ray machines

Portable diagnostic imaging equipment used in non-shield environments, such as from ambulatory/mobile facilities, must comply with the following operational protocols:

- a. The operator must always be able to accurately determine the direction of the primary beam and any object in its path.
- b. X-ray cassettes should not be held directly by hands, gloved or ungloved, during exposures except in the case of large animals where use of a radiographically protected gloved hand can be substituted for a special plate holder.
- c. Any persons assisting with restraining an animal must not be in any part of the beam during the process of x-raying and must be adequately protected (apron, gloves, thyroid

protector). It is recommended that extra protective aprons and thyroid protectors be available for such situations.

- d. All persons involved in the x-raying of an animal must be adequately protected (apron, gloves, thyroid protector).

Dental X-ray machines

Dental diagnostic imaging equipment must comply with the following operational protocols:

- a. The operator must always be able to accurately determine the direction of the primary beam and any object in its path. The primary beam of the dental X-ray device must not be directed towards any personnel or the public unless appropriate shielding intercepting the primary beam is in place.
- b. The operation of dental X-ray equipment should be controlled from the control panel/remote in a properly shielded area. In special circumstances, where the operator is required to control the capturing of images while at the side of the patient, protective equipment must be worn.
- c. Except for those persons whose presence is essential, all persons must leave the room when the irradiation is carried out. If personnel is unable to leave the room, personnel must, at all times, keep as far away from the X-ray beam as practicable. If personnel are not initiating the X-ray exposures from an adequately shielded location, then a minimum distance of 2 m must be maintained between the operator and the intra-oral X-ray source. In addition, the position of the operator must not be in the path of the primary X-ray beam.
- d. The intra-oral dental image receptor should be fixed in position, whenever possible, otherwise it should be held by personnel using a holding device (such as forceps) and wearing protective equipment (aprons, thyroid protector, and gloves) and be positioned to avoid the X-ray beam.

Protective Equipment

- Protective equipment is stored as followed:
 - o Location: *where stored (should be in accessible area to help ensure that people use the equipment),*
 - o Storage specifics: *how to store (hanging aprons and thyroid protectors (do not fold))*
- Dosimeters are managed as follows:
 - o Each staff member engaged in x-ray must have their own dosimeter.
 - Staff members obtain a dosimeter by _____. *(This should be given out in the onboarding process)*
 - o Dosimeters are stored ____*insert location*____. *(must be out of the x-ray room, should be in an accessible space so people wear them)*

(Clinic Logo)

- Guest dosimeters (for extended use only) must be traceable to specific person
- *RRCP students may be provided with a dosimeter from RRCP*
- *Recommendation: keep spares for new staff, volunteers, students, seasonal*
- *Recommendation: Not allowing volunteers partake in x-ray*

Storage of X-rays

- Radiographs are permanently labelled with the clinic name, the date, patient identification, and patient orientation (left or right).
- Radiographs are stored at least 5 years

Choose one option below for x-ray storage format

This practice stores x-rays in a digital format.

A backup copy of x-rays is made (weekly or every 50 images, whichever is more frequent is required). ____ *insert role* ____ completes the backup and is saved ____ *insert location* ____.

The log is maintained as followed:

- *In computer program, manual, etc*

X-rays made prior to ____ are stored as follows: *May not be applicable if the practice has been using digital x-ray images for over 5 years.*

- *Include manual logs and physical location.*

-or-

This practice stores x-rays in a physical format.

A radiographic logbook is located ____ *insert location* ____.

- The radiographic log contains
 - Owner and patient ID
 - Date image taken
 - *Any other information the clinic wants to include*

Maintenance of Machine and Protective Equipment

- Each x-ray machine and protective equipment is inspected at least every three years.

Page 4 of 6

(Clinic Logo)

- Recommend that x-ray aprons and thyroid protectors are at least annually x-rayed to ensure in good condition.
 - _____ *insert role* _____ ensures that inspections on x-ray machine and protective equipment are conducted.
 - The clinic uses the following inspector:
 - o *Insert name*
 - o *Insert contact info*
 - X-ray machine and protective equipment inspections are stored ____ *insert location* ____.
 - The dosimeters are maintained as follows:
 - o *Insert who/ what role, maintains the dosimeters*
 - o *Insert how the dosimeters are maintained and who reviews reports*
 - o *Insert where dosimeter records are kept*
- Resource: [National Dosimetry Services- https://www.canada.ca/en/health-canada/services/dosimetry/about.html](https://www.canada.ca/en/health-canada/services/dosimetry/about.html)
- If there are any issues with the x-ray machine should be directed to:
 - o *Insert name of service provider*
 - o *Insert contact information*

If conventional radiography machine is used- add this section

Conventional Radiography Machine

This practice uses the following conventional radiography machines:

- *machine 1, location*
- *machine 2, location*

Include information on:

- *How radiographic solutions are maintained (who, what, when)*
- *How solutions are disposed of (consult with WHIMIS, where stored)*
- *Proper PPE to be used when handling solutions*

Records

Cancer care registration numbers will be stored ____ *insert location* _____. or as follows:

- 1) Fixed x-ray machine- *Brand- serial number*: Cancer Care Registration No: _____
- 2) Dental Xray- *Brand- serial number*: Cancer Care Registration No: _____
- 3) Mobile Xray - *Brand- serial number*: Cancer Care Registration No: _____
- 4) Additional...

Dosimeter reports and records are stored ____ *insert location* ____.

Obtaining, Moving or Selling Radiology Machine

When this practice buys a new radiology machine, moves a fixed radiology machine, undergoes renovations, or sells a radiology machine, _____ *insert role* _____ will immediately report same to [Cancer Care Manitoba- https://www.cancercare.mb.ca/Research/medical-physics/radiation-protection-services](https://www.cancercare.mb.ca/Research/medical-physics/radiation-protection-services).

5. Procedure (New Staff, Students, Volunteers)

The practice should consider how new staff, students and volunteers are onboarded. You may wish to include direction on the following, non-exhaustive list:

How are they oriented to the procedure?

How is dosimeter given to a staff member

How is this handled with persons in the clinic for a limited period of time (students/volunteers)?

How is the SOP communicated? manual log, posted on wall, staff training