Working Safely in Labs with X-ray Equipment

The University of Manitoba has the duty to inform anyone that may be exposed to ionizing radiation from X-ray equipment of the potential hazards (MB 217/2006 Workplace safety and Health Regulation Section18.4). Additionally the use of X-ray equipment is governed by the MB 341/88 R X-ray Safety Regulation under the Public Health Act.

Low level ionizing radiation may induce pre-mature aging and cancer. Based on past and current exposure reports, the exposure from X-ray equipment used in areas controlled by the University of Manitoba is so small that the increased risk is insignificant. Please do your part by following the instructions in this pamphlet.

X-ray equipment used at the University has three major forms.

Dental X-ray Equipment (open beam)
Used for training dental students and for providing dental healthcare in the dental clinics.

Cabinet X-ray Equipment (enclosed beam)
The X-ray beam is enclosed. The equipment is used to study various inanimate materials (e.g. electron microscope, diffraction, spectroscopy).

Other Open Beam X-ray Equipment
Used on human and animal subjects for research purposes (e.g. DXA, fluoroscope, CT scanner).

How are X-ray equipment controlled at the University?
All X-ray equipment (other than electron microscopes) must be registered with Radiation Protection, Cancer Care Manitoba.

The University of Manitoba has a Radiation Protection Committee to oversee and advise on the Radiation Safety Program. The X-ray Committee is a sub-committee that oversees the X-ray Safety Program. All X-ray equipment at the University must be registered with EHS. Registered X-ray equipment have this sticker:

Effective July 1, 2011, all X-ray equipment used at the University outside of the College of Dentistry, must be listed on an Internal X-ray Permit. To operate the equipment, all conditions of the permit must be met.

Environmental Health and Safety (EHS) provide staff and resources for the day to day operations of the Radiation Safety Program. Details on the X-ray Safety Program are found at:


Do I need more advanced X-ray safety training?
The students and staff of the College of Dentistry have their own requirements for additional radiation safety training as provided within the College.

If you operate X-ray equipment other than as a part of the College of Dentistry programs, you need more information/training than what is in this pamphlet. Talk to your supervisor and contact Radiation Safety, email radsafety@umanitoba.ca
Hazard labels and signs

All X-ray equipment must be marked with this symbol.

At the University, every entrance to a room where X-ray equipment is used should have the following sign posted:

CAUTION means you may enter and perform duties or conduct lab experiments. The hazard is minimal.

How can I stay safe?

OPEN BEAM X-ray equipment releases radiation that may reach the eye or skin.

When OPEN BEAM X-ray equipment is in use and the operator needs to control access to the room, the entrance shall be posted:

DANGER—DO NOT ENTER-

When a room has this posted, special entry procedures are required. Do not enter unescorted except for Life Safety or Building Safety reasons.

When a room is posted “CAUTION”, under normal operating conditions, it is safe to work in the same room with X-ray equipment.

Ask the operator of the equipment or the person listed on the door sign for more specific information.

Never operate anything labelled or marked “X-ray” unless you are authorized.

LAB SECURITY Always close the door. If you are the last person to leave, lock the lab door to maintain security.

‘EVIDENCE OF FOOD CONSUMPTION’ Never consume food or drink in a lab and never place food or beverage related garbage in waste containers in the lab as this is considered by some provincial and federal inspectors to be ‘evidence of food consumption in the lab’.

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