

X-ray Equipment Self Study Assignment

Radiation Safety Training

University of Manitoba

Created May 4, 2018

INSTRUCTIONS

The student is to clearly print or write all responses on this document. Please answer the questions in a manner to demonstrate your understanding of radiation safety. This assignment will be used to assess your competency in order to be listed as a designated worker on an Internal X-ray Permit.

Prior to completing the assignment – review the X-ray Equipment Safety Orientation on the web at:

http://umanitoba.ca/admin/vp_admin/risk_management/ehso/media/X-ray_Safety.pdf

Name of Student completing the assignment: _____
(Please underline your family name)

The original completed assignment must be mailed to:

Environmental Health & Safety

P310 Pathology Building

May be sent electronically – Hard copy must follow!

Scan and e-mail to: radsafety@umanitoba.ca or Fax to: 204 789-3906

Section 1 - Basics of Radiation

1. X-rays are a form of _____ radiation?
 - a. Cosmetic
 - b. Particulate
 - c. Visible
 - d. Electromagnetic
2. Does a microwave or an X-ray have a longer wavelength? _____
3. X-rays are created when an electron collides with an atom. True_____ False _____

Section 2 - Legal Requirements

4. Name the two regulations governing the use of X-ray equipment:
 - a. _____
 - b. _____
5. Does the University of Manitoba have a governing document that establishes and outlines responsibilities for radiation safety at the University? Yes _____ No _____
6. How can you tell if X-ray equipment is registered with University Environmental Health and Safety?
7. At the University, what is the distinction between a clinical and a research X-ray equipment?

8. X-ray equipment must be registered with EHS if:
- a. It is used for clinical purposes
 - b. It is only used for research work
 - c. It is in a University controlled area
 - d. It was purchased through the University EPIC
 - e. a, b and c only
9. Is a prescription from a physician always required to X-ray a human in Manitoba? Yes ____ No ____

Section 3 - Exposure risks

10. What kind of harm to workers can result from exposure to ionizing radiation (list at least 4)?
- a.
 - b.
 - c.
 - d.
11. All University of Manitoba personnel are considered members of the general public and are subject to the whole body exposure limit of _____ per year.
- a. 1 mSv
 - b. 5 mSv
 - c. 50 mSv
 - d. 0.2 mSv
12. At the University, a worker must wear a whole body dosimeter when (check all that apply):
- Operating open beam X-ray equipment ____
- After receiving a nuclear medicine procedure _____
- When listed as a designated worker on an Internal X-ray Permit _____
13. Where should a dosimeter be stored when not worn?
14. A dosimeter is worn over shielding to accurately measure the worker's radiation exposure? True ____
False ____
15. Increasing distance from X-ray equipment will _____ radiation exposure:
- a. Decrease
 - b. Increase
 - c. Have no effect on
 - d. Stop
16. External radiation exposure can be decreased by:
- a. Reducing the time spent near a source
 - b. All of these
 - c. Using appropriate shielding placed between oneself and the source
 - d. Increasing the distance between oneself and the source

Section 4 - More on what is required

17. Responsibilities of anyone operating Research X-ray equipment include:
- Wear dosimeters as required
 - Follow the conditions of the permit.
 - Stop operation of the equipment if any unsafe operational conditions arise; and notify the Permit Holder, your supervisor and the Radiation Safety Officer.
 - Successfully complete the X-ray safety training and apply the learning to the work done with X-ray equipment.
 - All of these
18. If you plan on purchasing or inheriting X-ray equipment you must notify:
- Next of kin
 - Radiation Safety Officer
 - Centre for Disease Control
 - Twitterverse
19. If you plan on disposing or transferring ownership of X-ray equipment, you must notify:
- Security Services
 - Research Services
 - Facilities Management
 - Radiation Safety Officer
20. What is the goal of implementing safe work procedures for X-ray equipment?

Section 5 - Emergency Response

21. Any suspected over-exposure to radiation requires a timely investigation. If you suspect you have been overexposed, you should:
- Report incident immediately to the Radiation Safety Officer
 - Report incident tomorrow to the Permit Holder and your supervisor
 - Keep calm and carry on with your assignment
 - Panic

Declaration: By signing below, I have acknowledged that I personally have completed all the submitted answers to the questions.

Signature of person completing the assignment: _____

Date of Signature: _____

Name of Permit Holder: _____