Radiation Safety Institute of Canada
Institut de radioprotection du Canada

Radiation Safety & Wellness Webinars

May 19, 2022

Preparing for an

X-Ray Inspection in a Health Care Setting

Based on Ontario Regulations and Best Practices

With Guest Lothar Doehler

Followed by Mandel Fraser from PowerYoga West

Good Science in Plain Language®

Radiation Safety Institute of Canada
Institut de radioprotection du Canada

Webinar Functionality

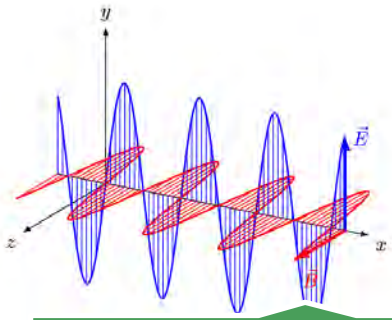
- Audio and video
  - During the presentation, from the presenters only
  - Use computer or telephone (call in)
  - Computer seems to give the best sound quality
  - Technical difficulties: 1-800-263-5803 x321
- Use the “Chat” feature to enter comments and questions
- Posted on webinar page
  - Video, answers to questions, copy of the slides
- Follow up email will be sent
  - Topics covered, time of attendance
- It may be possible to change your Zoom view if the controls are hiding the closed captioning.

Outline

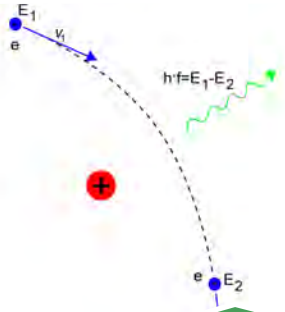
- Jurisdiction
  - CNSC
  - Health Canada
  - Provinces/Territories
- Interview
  - HARP Act
  - Facility organization
  - The role of the RPO
  - Worker credentials
  - Powers of inspectors
  - Additional advice
- Wellness

Radiation Safety Institute of Canada
Institut de radioprotection du Canada

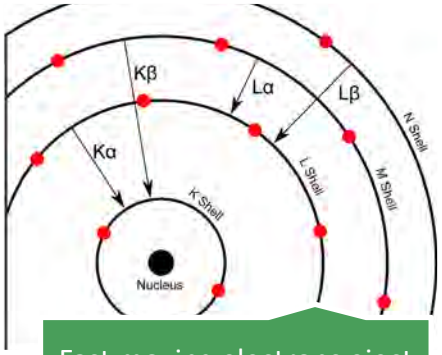
Why are X-rays Regulated



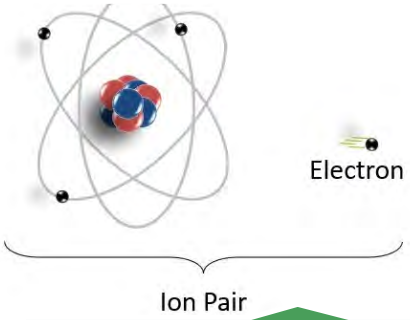
High energy electromagnetic waves



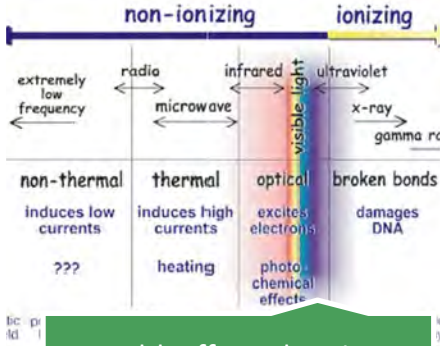
Fast moving electrons slow down/change directions



Fast moving electrons eject bound electrons



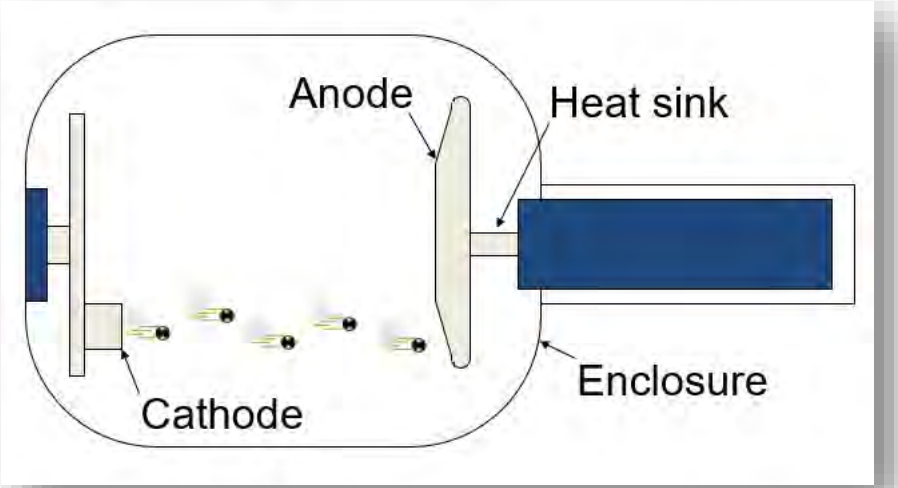
Ionizing radiation



Health effects: heating, photochemical, carcinogenic

EM-Wave.gif By And1mu - Own work, CC BY-SA 4.0, via Wikimedia Commons
Bremsstrahlung.svg - Journey234 assumed (based on copyright claims)., Public domain, via Wikimedia Commons
CharacteristicRadiation.svg - HenrikMidtiby, CC BY-SA 3.0, via Wikimedia Commons
NonIonizingRadiation.jpg - Glenna Shields, U.S. Environmental Protection Agency., Public domain, via Wikimedia Commons

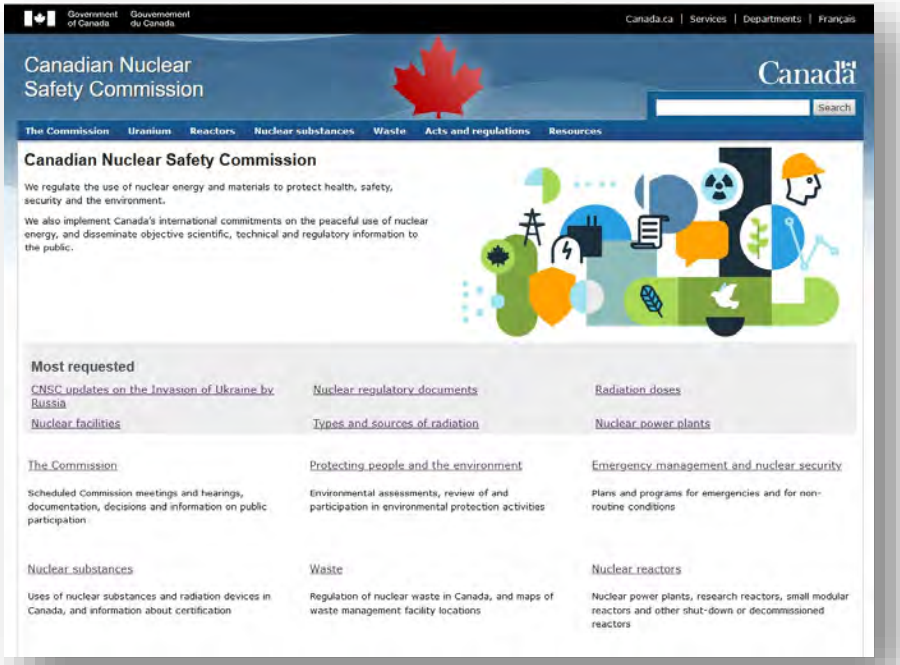
X-Ray Creation



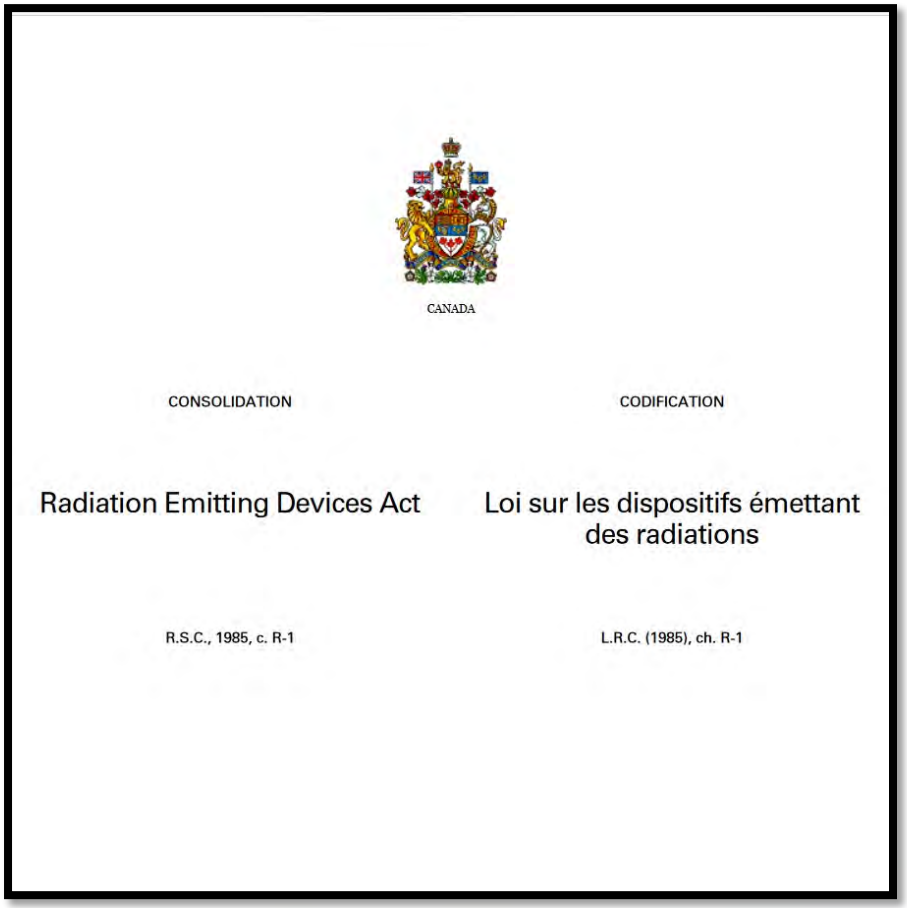
- Ionizing radiation
  - Radioactive isotopes
  - Human made equipment
- X-rays created by machines
  - Some built to purposefully create x-rays
  - Some built for other reasons

X-Ray Jurisdiction: CNSC

- Canadian Nuclear Safety Commission
- Regulates high-energy particle accelerators over 1 MeV
- Health care examples
  - High energy linear accelerators for cancer treatment
  - Cyclotrons for medical isotopes



X-Ray Jurisdiction: Health Canada



CANADA

CONSOLIDATION

CODIFICATION

Radiation Emitting Devices Act

Loi sur les dispositifs émettant des radiations

R.S.C., 1985, c. R-1

L.R.C. (1985), ch. R-1

- Import, sale lease
  - Except CNSC NSCA and TC MVSA
- RED Act and Regulation
  - Non-ionizing and ionizing
- Some provinces and territories require for equipment in use

Radiation Safety Institute of Canada
Institut de radioprotection du Canada

X-Ray Jurisdiction: Health Canada

20A	(Archived) X-ray Equipment in Medical Diagnosis Part A
25	Short-Wave Diathermy Guidelines for Limited Radiofrequency Exposure
26	Guidelines on Exposure to Electromagnetic Fields from Magnetic Resonance Clinical Systems
30	Radiation Protection in Dentistry
35	Safety Procedures for the Installation, Use and Control of X-ray Equipment in Large Medical Radiological Facilities
36	Radiation Protection and Quality Standards in Mammography

X-Ray Jurisdiction: Provincial/Territorial

- X-rays under 1MeV
- Not at Federally regulated workplaces
- Some refer to HC Safety Codes
- Typically, Ministry responsible for Occupational Health and Safety
- Ontario unique
  - 2 Ministries

Radiation Safety Institute of Canada
Institut de radioprotection du Canada

X-Ray Jurisdiction: Ontario

Ontario
Ministry of Labour, Training and Skills Development

MLTSD

- Worker safety
- Occupational Health and Safety Act
- Regulation 861: X-Ray Safety

Ontario
Ministry of Health

MOH

- Patient safety
- Healing Arts Radiation Protection Act
- Regulation 543: X-Ray Safety Code

Disclaimer

Danielle Scott, CC BY-SA 2.0, via Wikimedia Commons

- Not legal advice
- Follow regulations in your jurisdiction
- Points for consideration
- Best practices
- Not vetted by Ministries
- Detailed questions to relevant jurisdictional Ministry

Radiation Safety Institute of Canada
Institut de radioprotection du Canada

Interview and Participant Questions

- Interview Questions
- Questions posted in the chat room
- To ask a question verbally
  - use “raise hand” button
  - When asked, press spacebar or unmute to speak
- Questions we do not get to
  - Answers will be posted to our website and link to resources emailed out

Interview and Participant Questions

- Interview Questions
- Questions posted in the chat room
- To ask a question verbally
  - use “raise hand” button
  - When asked, press spacebar or unmute to speak
- Questions we do not get to
  - Answers will be posted to our website and link to resources emailed out

Radiation Safety Institute of Canada
Institut de radioprotection du Canada

"Good science in plain language"®

Thank you for listening!

www.radiationsafety.ca

1-800-263-5803

info@radiationsafety.ca

Radiation Safety Institute of Canada
Institut de radioprotection du Canada

References and Resources

- Ontario Ministry of Health: https://www.ontario.ca/page/ministry-health
- HARP Act: https://www.ontario.ca/laws/statute/90h02
- Regulation 543 – X-Ray Safety Code: https://www.ontario.ca/laws/regulation/900543
- Ontario Ministry of Labour, Training, and Skills Development: https://www.ontario.ca/page/ministry-labour-training-skills-development
- OHSA of Ontario: https://www.ontario.ca/laws/statute/90o01
- Regulation 861 – X-Ray Safety: https://www.ontario.ca/laws/regulation/900861

Radiation Safety Institute of Canada
Institut de radioprotection du Canada

References and Resources

- RED Act: https://laws-lois.justice.gc.ca/eng/acts/r-1/FullText.html
- RED Regulation: https://laws-lois.justice.gc.ca/eng/Regulations/C.R.C.,_c._1370/index.html
- Health Canada Safety Codes: https://www.canada.ca/en/services/health/publications/health-risks-safety.html
- Canadian Nuclear Safety Commission: https://nuclearsafety.gc.ca/
- Inspection of Lead Aprons: Criteria for Rejection: https://www.mpcphysics.com/documents/ApronInspectionCriteria_for_Rejection.8.pdf
- Particle Accelerators in Medicine: https://link.springer.com/chapter/10.1007/978-3-642-00875-7_14?noAccess=true