



Reading Hospital
School of Health Sciences
Medical Imaging Program

MI 110: Introduction to Medical Imaging
Unit 1 – History & Scope of Practice

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Radiography is...

... the use of x-rays, gamma rays, radio waves, high frequency sound waves, and/or radioactive substances for diagnostic and therapeutic purposes in medicine



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History

Wilhelm Conrad Roentgen

November 8, 1895

- Was experimenting with cathode rays and electron emission
- Observed a screen painted with barium several feet away emitting light
- This effect also called fluorescing was caused by invisible rays being emitted from the tube
- First published x-ray was of his wife's hand
- Died February 10, 1923 from colon cancer



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History

Marie Curie

- Coined the term Radioactivity
 - Fascinated with Henri Becquerel's work with uranium
 - Discovered polonium/ radium
- 1st women to win Nobel Prize in Physics and only women awarded prize in two fields
- Died July 4, 1934 from aplastic anemia

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Radiologic Technologist

A person qualified to use radiation and/or radioactive substances to produce images of the internal structures of the body for interpretation by a Radiologist

- **Schooling**
 - Completion of an accredited radiography program
 - Associates degree at minimum
- **Credentials**
 - National Board Exam: ARRT (American Registry of Radiologic Technologists)
 - Upon successful completion registered technologists use initials R.T. (R) (ARRT)
 - Continuing Education Credits
 - Continuing Qualifications Requirements (CQR)



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Radiologist

A medical doctor who specializes in diagnosing and treating injuries and diseases using medical imaging procedures.

- **Schooling**
 - Bachelors Degree
 - 4-year Medical School – M.D. or D.O.
 - 4-year residency in diagnostic radiology
 - Optional – 1-to-2-year fellowship
- **Certified by the American Board of Radiology**



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asrt
American Society of
Radiologic Technologists

American Society of Radiologic Technologists

- Professional association for medical imaging and radiation therapists
- Mission is to advance the profession and enhance quality patient care
- Vision is to be the premier professional association through education, advocacy, and research

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Practice Standards & Scope of Practice

- **Practice Standards-** Define the practice of radiography and establish general and specific criteria to determine compliance.
 - Defines the activities of care to patients and delivery of diagnostic/therapeutic procedures
 - Can be utilized to develop job descriptions and practice parameters
 - The Practice Standards are divided into six sections: introduction, scope of practice, clinical performance, quality performance, professional performance and advisory opinion statements
- **Scope of Practice-** Outlines parameters of practice and ID's boundaries for practice
 - Lists of tasks appropriate as part of the work of a person who is prepared educationally/clinically for the profession

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Radiographer Scope of Practice

- Providing optimal patient care.
- Applying principles of ALARA to minimize exposure to patient, self and others.
- Applying principles of patient safety during all aspects of patient care.
- Preparing patients for procedures.
- Corroborating a patient's clinical history with procedure and ensuring information is documented and available for use by a licensed practitioner
- Receiving, relaying and documenting verbal, written and electronic orders in the patient's medical record.
- Selecting the appropriate protocol and optimizing technical factors while maximizing patient safety.
- Verifying informed consent for applicable procedures.

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Radiographer Scope of Practice Cont.

- Performing diagnostic radiographic and noninterpretive fluoroscopic procedures as prescribed by a licensed practitioner.
- Assisting the licensed practitioner with fluoroscopic and specialized radiologic procedures.
- Identifying, preparing and/or administering medications as prescribed by a licensed practitioner.
- Administering medications parenterally through new or existing vascular access, enterally or through other appropriate routes as prescribed by a licensed practitioner.
- Administering medications with an infusion pump or power injector as prescribed by a licensed practitioner.
- Performing venipuncture as prescribed by a licensed practitioner.
- Starting, maintaining and/or removing intravenous access as prescribed by a licensed practitioner.
- Verifying archival storage of data.

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Radiographer Scope of Practice Cont.

- Verifying archival storage of data
- Assisting in maintaining medical records, respecting confidentiality and established policy.
- Performing ongoing quality assurance activities.
- Postprocessing data.
- Educating and monitoring students and other health care providers.
- Providing education.
- Evaluating images for proper positioning and determining if additional images will improve the procedure or treatment outcome.
- Evaluating images for technical quality and ensuring proper identification is recorded.
- Identifying and responding to emergency situations.

[ASRT Practice Standards](#)

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ASRT – Position Statement

Statements that reflect the beliefs/standing of the ASRT

- Address issues outside of practice
(Not considered as strong as practice standards/scope of practice)
 - “...opposes the employment or utilization of uncertified or unlicensed individuals to perform medical imaging and radiation therapy procedures. This is a breach of responsibility of the health care industry in providing quality patient care.” --2019
 - “...opposes the use of full-body computed tomography as a screening tool.” --2009

[ASRT Position Statement](#)

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THE AMERICAN REGISTRY OF RADIOLOGIC TECHNOLOGISTS®

- World's largest organization offering credentials in medical imaging, interventional procedures, and radiation therapy.
- Certifies and registers technologists in a range of disciplines by overseeing and administering education, ethics, and examination requirements.

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ARRT – Mission Statement

- Our mission is to promote high standards of patient care by recognizing qualified individuals in medical imaging, interventional procedures, and radiation therapy.
- Adopt and uphold standards for educational preparation for entry into the profession
- Adopt and uphold standards of professional behavior consistent with the level of responsibility required by professional practice
- Develop and administer examinations that assess the knowledge and skills underlying the intelligent performance of the tasks typically required by professional practice in the discipline
- [ARRT Code and Rules of Ethics](#)

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ARRT – Standards of Ethics

Code of Ethics

- A guide by which certificate holders and candidate can evaluate their professional conduct
- The Radiologic Technologist...
 - “... acts in a professional manner, responds to patients needs, and supports colleagues and associates in providing quality patient care.”
 - “... assesses situations; exercises care, discretions, and judgement; assumes responsibility for professional decisions; and acts in the best interest of the patient.”
 - “... continually strives to improve knowledge and skills by participating in continuing education and personal activities, sharing knowledge with colleagues, and investigating new aspects of professional practice.”

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ARRT – Standards of Ethics (Cont.)

Rules of Ethics

- Mandatory standards of minimally acceptable professional conduct for all Certificate Holders and Candidates
 - *Fraud or Deceptive Practices*
 - *Subversion*
 - *Unprofessional Conduct*
 - *Scope Of Practice*
 - *Fitness to Practice*
 - *Violation of State or Federal Law or Regulatory Rules*

[ARRT Code and Rules of Ethics](#)

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