



HKCRRT

*The Hong Kong College
of Radiographers and
Radiation Therapists*

Standards of Practice for RT Imaging

By

RT Imaging Faculty

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1. Brief information/background of RT imaging

The healthcare professional performing the RT imaging is responsible for providing accurate and high-precision radiation therapy. Such imaging is crucial in radiotherapy planning and treatment verification. Accurate targeting and nearby normal organ definition using different imaging modalities are vital for the delivery of high therapeutic doses to the tumor while optimally sparing the surrounding healthy tissues.

RT imaging is applied in two main areas: treatment planning and treatment verification. Different imaging techniques to visualize the tumor and nearby normal structures are applied and used in the treatment planning process and in treatment imaging techniques, where the correct location of treatment volume is verified. It is essential for RT imaging specialists to continue their professional development to enhance their competence.

2. Safety and precautions

2.1 Radiation protection

2.1.1 Uphold the ALARA (as low as reasonably achievable) principle during imaging procedures.

2.2 Safety specific to the specialty

2.2.1 Follow all necessary precautions for safe use of but not limited to radiation and MR equipment.

3. Roles and responsibilities of RT imaging specialists

3.1 Competency

- 3.1.1 Understand the principle and instrumentation of different imaging modalities.
- 3.1.2 Understand the factors affecting image quality.
- 3.1.3 Optimize the image quality with or without contrast media.
- 3.1.4 Avoid image artifacts.
- 3.1.5 Understand the image formation in different imaging modalities.

3.2 Data privacy

- 3.2.1 Protect patient privacy.
- 3.2.2 Keep all patient information confidential, except when it is necessary to facilitate the imaging procedures of the patients, or when legally obliged.
- 3.2.3 Patient data is retrieved on an as-needed basis.

3.3 Patient identification

- 3.3.1 Correct patient identification.
- 3.3.2 Use at least two different personal identifiers to verify a patient's identity (e.g., patient's name, HKID card number, date of birth, phone number, or residential

address).

3.4 Application of the ALARA principle

- 3.4.1 Radiation imaging should only be carried out if the benefit of the examination outweighs the risk.
- 3.4.2 Apply the ALARA principle to minimize the radiation hazard to patients, staff, and others.

3.5 Roles of RT imaging specialists

- 3.5.1 Operate different imaging equipment to acquire good quality images.
- 3.5.2 Apply different image processing techniques to provide quality images.
- 3.5.3 Perform image registration to provide a clear definition of the tumor and nearby normal structures for treatment planning and treatment verification.
- 3.5.4 Take the necessary precautions for safe use of different imaging equipment.
- 3.5.5 Store and retrieve imaging data in a safe and secure manner.

4. Requirements of RT imaging specialists

4.1 Academic qualifications

- 4.1.1 Must be a radiation therapist registered with the Hong Kong Radiographers Board with a valid Annual Practicing Certificate; AND
- 4.1.2 Must be in possession of a bachelor's degree in radiation therapy or equivalent; AND
- 4.1.3 Must be in possession of higher academic qualifications in RT imaging (e.g., master's degree or above in RT imaging) or other RT imaging qualifications recognized by the HKCRRT (e.g., a pass in the RT Imaging Certification Examination of the HKCRRT).
- 4.1.4 Must have a minimum of two years' post-registration work experience in RT imaging.

4.2 Manner to handle patients

- 4.2.1 RT imaging specialists should communicate with the patient clearly and in a good manner.
- 4.2.2 They should always assess the patient's needs and provide reassurance and privacy.
- 4.2.3 RT imaging specialists should also explain and instruct patients at a level that they can understand.
- 4.2.4 RT imaging specialists need to address the patient's concerns regarding the imaging procedure, including but not limited to radiation and MR risks as well as the possible adverse effect of the contrast medium.

4.3 Collaboration

RT imaging specialists are taught to independently perform their duties under the direction of an oncologist. It is essential to collaborate with different parties (e.g., oncologists, medical physicists, medical dosimetrists, and other health care professionals) in the process of imaging acquisition, optimization, manipulation, and registration for quality treatment planning, accurate treatment delivery, and quality management for patients.

4.4 Training and education

4.4.1 RT imaging specialists should continually strive to improve their knowledge and skill sets related to the profession. The field of radiation oncology and imaging is a continuously growing and rapidly evolving field.

4.4.2 It is important for RT imaging specialists to maintain a level of expertise by continuing their education and training to keep up with the latest advancements in the field of RT imaging. They shall complete 15 CPD points relevant to RT imaging in each triennium in order to maintain the certified specialist credential.

4.5 Research and development

RT imaging specialists are encouraged to participate in research and development to cope with the rapid evolution of RT imaging modalities and techniques.

5. Clinical application

5.1 RT imaging requires understanding and knowledge in but not limited to

- 5.1.1 X-ray/computer tomography (CT),
- 5.1.2 Ultrasound (U/S), magnetic resonance (MR),
- 5.1.3 Positron emission tomography (PET),
- 5.1.4 Data processing and image registration, and
- 5.1.5 Site-specific advanced RT imaging.
 - 5.1.5.1 Cranium
 - 5.1.5.2 Head and neck
 - 5.1.5.3 Thorax (breast)
 - 5.1.5.4 Thorax (lungs)
 - 5.1.5.5 Abdomen
 - 5.1.5.6 Pelvis (male)
 - 5.1.5.7 Pelvis (female)

6. Declaration

The content of this SOP serves as a reference for radiographers and radiation therapists, or related professionals. It should not be treated as comprehensive information regarding related examinations or procedures. The further elaboration of this document is subject to the decision of the council of the Hong Kong College of Radiographers and Radiation Therapists.

7. References

- American Society of Radiologic Technologists (ASRT), The Practice Standards for Medical Imaging and Radiation Therapy. Effective June 26, 2016
- Australian Institute of Radiography (AIR), Professional Practice Standards for the Accredited Practitioner, 2013
- New Zealand Medical Radiation Technologists Board, Competencies Required for the Practice of Radiation Therapy, September 2011