



CAHPPEI

College of
Allied Health Professionals
of Prince Edward Island

STANDARDS OF PRACTICE
Medical Radiation Technologists (MRT)

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INTRODUCTION

The Standards of Practice have been developed by the **COLLEGE OF ALLIED HEALTH PROFESSIONALS OF PRINCE EDWARD ISLAND (CAHPPEI or the “College”)** to describe the expectations for professional practice of Medical Radiation Technologists (MRT’s) of the College. The Standards of Practice for MRTs describe what each MRT is accountable and responsible for in practice. They represent performance criteria for MRT’s and can be used to interpret the scope of practice to the public and other health care professionals.

In the Standards of Practice for MRTs:

“members” refers to all members of the *College of Allied Health Professionals of Prince Edward Island* who are engaged in the practice of Medical Radiation Technology; more specifically, that includes MRTs in each of four specialties, being Radiological Technology, Radiation Therapy, Nuclear Medicine and Magnetic Resonance.

“profession” refers to the profession of Medical Radiation Technology, which includes all of the four specialties: Radiological Technology, Radiation Therapy, Nuclear Medicine, Magnetic Resonance.

The Standards of Practice for MRTs reflect the knowledge, skills and judgment that MRT’s need in order to perform the services and procedures that fall within the scope of practice of the profession.

The *Regulated Health Professions Act* governs the practice of regulated health professions in Prince Edward Island. For this profession, MRTs are regulated by the *Allied Health Professionals Regulations (“Regulations”)*. The Regulations set out in the scope of practice statement for Medical Radiation Technology is as follows:

“The practice of medical radiation technology means the health profession in which a person applies knowledge, skills and judgement in using ionizing and non-ionizing radiation, magnetic fields, high frequency sound waves and other energy forms in the provision of diagnostic and therapeutic modalities and conducting research.”

The *Regulations* also set out which of the reserved activities, as set out in the Regulated Health Professions Act, members are authorized to perform. These are known as authorized activities. The *Regulations* state:

In the course of engaging in the practice of medical radiation technology, a member is authorized, subject to the terms, conditions and limitations imposed on his or her certificate of registration, to perform the following:

1. **Administering substances by injection or inhalation.**
2. **Administering contrast media, or putting an instrument, hand or finger,**
 - a. **Beyond the opening of the urethra**
 - b. **Beyond the labia majora**
 - c. **Beyond the anal verge**
 - d. **Beyond the external ear canal.**
3. **Into an artificial opening of the body.**
4. **Performing a procedure on tissue below the dermis for the purpose of stating an intravenous line.**
5. **Applying a prescribed form of energy.**

The Standards of Practice for MRTs are intended to be generic. The indicators following each Practice Standard indicate the application of the Practice Standard in a specific dimension of practice. Most indicators refer to tasks that are common to all MRT's. Indicators that refer to tasks generally performed only by MRT's in one of the disciplines are listed under separate headings. The methods for implementing each task may be determined by departmental policies and procedures.

In the event that the Standards of Practice for MRTs set a standard that is higher than the departmental policy or procedure, the MRT must comply with the standards set by the Standards of Practice. In the Standards of Practice for MRTs, the term "legislation" refers to both statutes and regulations.

Under the College's Standards of Practice, MRT's are expected to be:

Competent: meaning to have the necessary knowledge, skills and judgment to perform safely, effectively and ethically and to apply knowledge, skill and judgment to ensure safe, effective and ethical outcomes for the patient. This means that MRT's must maintain competency in their current area of practice, must refrain from acting if not competent and must take appropriate action to address the situation.

Accountable: meaning to take responsibility for decisions and actions, including those undertaken independently and those undertaken as a member of a team. This means MRT's must accept the consequences of their decisions and actions and act on the basis of what they, in

their clinical judgment, believe is in the best interest of the patient. MRT's must take appropriate action if they feel these interests are being unnecessarily and unacceptably compromised. This includes not implementing ordered procedures or treatment plans that, from their perspective, appear to be contraindicated, and in this event, taking appropriate action to address the situation.

Collaborative: meaning to work with other members of the health care team to achieve the best outcomes for the patient. This means MRT's are responsible for communicating and coordinating care provision with other members of the health care team, and taking appropriate action to address gaps and differences in judgment about care provision.

1. LEGISLATION, STANDARDS AND ETHICS

MRT's are members of the *College of Allied Health Professionals of Prince Edward Island*. In order to be registered as a member of *College of Allied Health Professionals of Prince Edward Island*, MRT's must meet the professional education and other registration requirements set forth by the College. They must continue to educate themselves about practical, legal, ethical and other matters pertaining to the profession. MRT's must be competent, accountable and collaborative in their practice.

Practice Standard:

MRT's must understand, and adhere to, the legislation governing the practice of the profession, the Standards of Practice for MRTs set by the College, the Code of Ethics and the By-Laws of the College.

Indicators:

MRT's must:

- a. Have the knowledge, skills and judgment to perform procedures undertaken in the course of their practice of the profession
- b. Take responsibility for decisions and actions, including those undertaken independently and those undertaken as a member of a team
- c. Work with other members of the health care team to achieve the best possible outcomes for the patient
- d. Adhere to all relevant provincial and federal legislation and guidelines governing the practice of the profession

- e. Adhere to the Standards of Practice for MRTs set by the College
- f. Adhere to the Code of Ethics for MRTs and the By-Laws of the College
- g. Adhere to *Allied Health Professionals Regulations*

2. EQUIPMENT AND MATERIALS

The practice of MRT's entails the use of wide range of equipment and materials. MRT's must know and understand the functions, capabilities, specifications, hazards and limitations of the equipment and materials they use in the course of their practice.

Practice Standard:

MRT's must have the knowledge, skills and judgment to select the appropriate equipment and materials for procedures ordered by a physician or other authorized health professional, to make determinations as to the quality, serviceability and operability of the equipment and materials, and to take any corrective actions required to meet standards set by legislation, facility policies and manufacturers' guidelines. MRT's must be skilled in making safe, efficient and effective use of resources to produce the desired examination information or deliver safe, effective treatment.

Indicators:

MRT's must:

- a. Ensure the room is prepared for the procedure specified in the order
- b. Select and set up the equipment and materials needed for the procedure specified in the order
- c. Select the correct substance to be administered orally, by injection or inhalation, or into the body through an orifice
- d. Prepare diagnostic or therapeutic substances as required
- e. Conduct the required quality control tests, or ensure that the required quality control tests have been conducted, on each piece of equipment and any materials used in the ordered procedure, according to the applicable legislation and the facility policies and manufacturers' guidelines
- f. Ensure that the results of the quality control tests are acceptable

- g. If quality control tests are not within acceptable limits, take corrective action to ensure that the standards set by legislation, facility policies and manufacturers guidelines are met
- h. Determine the quality, serviceability and operability of the equipment and materials to be used in the procedure in accordance with the standards set by legislation, facility policies and manufacturers' guidelines, and if the standards are not met, take corrective action
- i. Determine, set and verify the technique and protocol to be used in the procedure
- j. Verify all required immobilization and/or beam modification devices
- k. Make use of appropriate shielding devices

In addition, MRT's in the Radiation Therapy specialty must:

- l. Prepare or construct immobilization or personalized devices and/or beam modification devices as required

In addition, MRT's in the Magnetic Resonance Imaging specialty must:

- m. Administer and follow the necessary safety precautions for entry to the magnet room
- n. Follow and adhere to manufacturers specifications for specific implants prior to entrance into magnet room

In addition, MRT's in the Nuclear Medicine and Radiation Therapy specialty must:

- o. Dispose of expired, unused or contaminated eluate, radioactive materials and all administrative devices in accordance with legislation and establish safety protocols
- p. Store radiopharmaceuticals and radioactive materials according to the manufacture's specifications

3. DIAGNOSTIC AND THERAPEUTIC PROCEDURES

MRT's employ ionizing radiation, radiopharmaceuticals and electromagnetism to create images and data that are part of diagnostic imaging examinations or that are used for defining and recording treatment parameters. These images may be dynamic, on film, digital displays, 3D models or templates. MRT's in the Radiation Therapy and Nuclear Medicine specialties administer ionizing radiation to treat cancer and other diseases.

Practice Standard:

MRT's must be able to create images and data that are sufficiently accurate and clear for the diagnostic or therapeutic procedures that are ordered by a physician or other authorized health professional, while, in the case of procedures that use ionizing radiation, using only the minimum amount of radiation necessary during the course of the procedure. MRT's must be proficient in the evaluating and interpreting of the images, data and tests relating to the procedures to ensure that the images, data and tests are satisfactory.

MRT's must be able to administer ionizing radiation, radiopharmaceuticals and electromagnetism accurately and in accordance with the order of the physician or other authorized health professional for the diagnostic or therapeutic procedure and the applicable legislation. MRT's must not apply or administer ionizing radiation or radiopharmaceuticals unless the conditions under the legislation have been met.

Indicators:

MRT's must:

- a. Perform procedures involving the application or administration of ionizing radiation only when the conditions under the applicable legislation have been met
- b. perform authorized acts only when the conditions under the legislation and the Standards of Practice for MRTs have been met
- c. ensure that the appropriate order authorizing the performance of the procedure is in place:
 - i. for the application of ionizing radiation, nuclear medicine procedures, and the application of electromagnetism: the order must be from a physician or other authorized health professional
- d. perform procedures, including authorized or delegated acts, only in the course of engaging in the practice of medical radiation technology
- e. not perform procedures contrary to any terms, conditions or limitations placed upon the MRT's certificate of registration
- f. have and apply the necessary knowledge, skill and judgment to perform and manage the outcomes of performing the procedure safely, effectively and ethically
- g. ensure that patient informed consent has been obtained

- h. be responsible and accountable for performing the procedure and managing the outcomes having considered:
 - i. the known risks to the patient in performing the procedure
 - ii. the predictability of the outcomes in performing the procedure
 - iii. whether the management of the possible outcomes is within the MRT's knowledge, skills and judgment given the situation
 - iv. any other factors specific to the situation to ensure the procedure is implemented safely, effectively and ethically
- i. not perform a procedure or provide an advice which may result in serious bodily harm unless that procedure or advice is within the scope of practice of the profession or the MRT is authorized or permitted to do so by legislation
- j. position the patient as required for the diagnostic or therapeutic procedure
- k. ensure the area to be diagnosed or treated will be displayed on the resultant image or captured electronically
- l. use radiation protection devices and other patient protection devices as required
- m. instruct the patient on breathing and movement procedures
- n. ensure that the orientation of the body and other pertinent parameters are marked correctly on the image and data
- o. ensure the exposure provides optimum image quality while using minimal radiation ALARA (As Low As Reasonably Achievable) Principle.
 - i. ALARA is a safety principle designed to minimize radiation doses and releases of radioactive materials. More than merely best practice, ALARA is predicated on legal dose limits for regulatory compliance, and is a requirement for all radiation safety programs.
 - ii. Ensure MRTs follow the three major safety principles:
 1. TIME—Minimize the time of exposure.
 2. DISTANCE—Double the distance between your body and the radiation source; this reduces the radiation exposure.
 3. SHIELDING—Use absorber materials particles and lead for X-rays and gamma rays.

- p. ensure examination results (images and data) provide all the information requested in the order
- q. carry out the procedures ordered
- r. assess the patient's condition before, during and after the procedure or course of treatment
- s. respond to any change in the patient's condition during or after the procedure or course of treatment
- t. complete the procedure, advise the patient of any post-procedural care, and transfer the care of, or release, the patient

In addition, MRT's in the Radiological Technology, Nuclear Medicine, Magnetic Resonance specialties must:

- u. determine if the image and/or data is of sufficient quality or if additional or repeat images are necessary

In addition, MRT's in the Radiation Therapy specialty must:

- v. develop and/or interpret a treatment plan for each patient
- w. calculate treatment doses and duration of administration
- x. ensure use of record and verification systems
- y. identify the treatment field and treatment volumes
- z. determine if the image verifies treatment parameters or if a repeat image is necessary
- aa. assess and match the treatment verification image with the reference image and make required adjustments to the patient position
- bb. select and/or verify treatment parameters
- cc. administer treatment

In addition, MRT's in the Magnetic Resonance specialty must:

- dd. ascertain whether any external or implanted metallic objects/devices can be safely scanned prior to patients' entry into the magnet room

4. SAFE PRACTICE

MRT's operate equipment, apply ionizing radiation, electromagnetism for magnetic resonance imaging and administer radiopharmaceuticals, all of which could be dangerous if used incorrectly. MRT's endeavour, at all times and in every aspect of their practice, to reduce the risk of harm to their patients to themselves, to their colleagues and to any other individuals who may be present in the practice environment.

Practice Standard:

MRT's must have and maintain the knowledge, skills and judgment to practice safely by adhering to all relevant provincial and federal legislation and guidelines, departmental protocols and policies and manufacturers' directions pertaining to health and safety. In the event of any unexpected problems or emergencies, MRT's must be competent and prepared to handle or to assist in the management of the situation.

Indicators:

MRT's must:

- a. Observe all departmental policies and relevant provincial and federal legislation and guidelines pertaining to health and safety, such as:
 - i. *Regulated Health Professions Act* and its relevant regulations
 - ii. *The Allied Health Professionals Regulations*
 - iii. *Occupational Health and Safety Act* and its regulations
 - iv. *Nuclear Safety and Control Act* and its regulations
 - v. *Radiation Emitting Devices Act* and its regulations
 - vi. *Transportation of Dangerous Goods Act* and its regulations
 - vii. Health Canada's Technical Reports and Publications, including:
 1. Safety Code 20A - X-Ray Equipment in Medical Diagnosis Part A: Recommended Safety Procedures for Installation and Use, 1980
 2. Safety Code 26 - Guidelines on Exposure to Electromagnetic Fields from Magnetic Resonance Clinical Systems, 1987

3. Safety Code 30 - radiation Protection in Dentistry, 1999
 4. Safety Code 35 - Safety Procedures for the Installation, Use and Control of X-Ray Equipment in Large Medical Radiological Facilities, 2008
 5. Safety Code 36 - Radiation Protection and Quality Standards in Mammography - Safety Procedures for the Installation, Use and Control of Mammographic X-Ray Equipment, 2013
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- b. Conduct the appropriate quality control tests, or ensure that the appropriate quality control tests have been conducted, for all equipment and substances to be used in the diagnostic and therapeutic procedure
 - c. Take corrective action if quality control tests are not within acceptable limits
 - d. Use substances only before their expiry date or time
 - e. Verify the patients' identity for all diagnostic or therapeutic procedures
 - f. Ascertain whether any female patients (of reproductive age) may be pregnant and make necessary explanations, referrals or implement essential restrictions
 - g. Notify the patients physician, radiologists, nuclear medicine physician or radiation oncologist of any contraindications to the ordered procedure and obtain direction to proceed, modify or halt the procedure
 - h. Prior to administering a substance orally, by injection or inhalation, or into the body beyond an orifice, ascertain whether there are any contraindications to administering the substance to the patient and make necessary explanations or referrals or implement necessary restrictions
 - i. Assess the patients physical and emotional limitations and ensure that the patient will not be expected to perform any task or movement that would cause physical harm
 - j. Take all reasonable precautions to ensure that no equipment can injure a patient
 - k. Use the ALARA principle to minimize patient exposure to radiation for the procedure
 - l. Use shielding/protective devices where indicated

- m. Initiate emergency response procedures, notify a physician (if possible) and assist in, or carry out, emergency treatment as required if a patient suffers any adverse reaction to treatment or to administered substances
- n. Use appropriate aseptic techniques and infection control procedures in the course of the diagnostic or therapeutic procedure
- o. Protect themselves, their colleagues, other members of the health care team, any other individuals who may be present as well as any patient from any unnecessary exposure to radiation
- p. Ensure all positioning aids and immobilization devices maintain the patients position appropriate to the procedure specified in the patients' chart/order according to departmental policy
- q. Assess the patient's condition before, during and after the course of treatment or procedure
- r. Where appropriate, remove markers and accessory equipment/devices before the patient is released

In addition, MRT's in the Magnetic Resonance specialty must:

- s. Ensure that there are no contraindication present that could harm the patient or would exclude the patient from having the examination
- t. Ensure that all equipment and devices, both patient specific and accessory, are MRI compatible or MRI conditional before being brought into the MRI area
- u. Administer and follow the necessary safety precautions for entry to the magnet room to protect themselves, the patient, their colleagues, other members of the health care team and any other individuals who may be present

In addition, MRT's in the Nuclear Medicine specialty must:

- v. Conduct personal and area contamination monitoring
- w. Decontaminate where necessary in accordance with the license(s) under the *Nuclear Safety and Control Act*
- x. Use appropriate personal protection equipment when handling radioactive materials in accordance with any license(s) issued under the *Nuclear Safety and Control Act*.

In addition, MRT's in the Radiation Therapy specialty must:

- y. Label and orient all patient specific ancillary equipment

5. RELATIONSHIPS WITH PATIENTS

MRT's have patients as their main concern.

Practice Standard:

MRT's must maintain clear and professional boundaries in relationships with patients and treat all patients with dignity and respect. MRT's must have the knowledge, skills and judgment to avoid placing patients at unnecessary risk of harm, pain or distress. MRT's must be able to provide appropriate responses to patient inquiries about procedures and related issues, and accept the patients' autonomy and the right of the patient or the patients substitute decision maker to consent to or refuse service. MRT's must understand how and act to protect the confidentiality of all professionally acquired information about patients and the privacy of patients with respect to that information, while facilitating the effective delivery of health care.

Indicators:

MRT's must:

- a. Provide clear and understandable information to the patient or patients substitute decision maker prior to, during and after the diagnostic or therapeutic procedure using an interpreter if necessary
- b. Give the patient or patients substitute decision maker an opportunity to ask questions
- c. Provide the patient or patients substitute decision maker with answers to his or her questions within the scope of practice of MRT responsibility
- d. Refer questions of the patient or patients substitute decision maker that are outside the scope of practice of MRT responsibility to an appropriate health professional for answers
- e. Carry out diagnostic or therapeutic procedures only with the informed consent of the patient or patients substitute decision maker
- f. Treat the patient with dignity and respect and in accordance with the Code of Ethics of the College

- g. Make modifications to procedures based on the patients physical, medical and/or emotional status and needs, based on the MRT's assessment of the patients physical, medical and/or emotional status and needs
- h. Instruct the patient to remove only the clothing and items that will interfere with the diagnostic or therapeutic procedures
- i. Provide the patient with a gown or sheet to cover areas where clothing was removed
- j. Explain to the patient when and where the MRT might touch him/her/them and why
- k. Touch the patient in only those areas needed to facilitate carrying out the procedure
- l. Keep all patient information confidential except when necessary to facilitate diagnosis or treatment of the patient, or when legally obligated or allowed to disclose such information
- m. Comply with any applicable privacy legislation such as the *Health Information Act*
- n. Comply with the College's sexual abuse prevention program, if such program exists

6. PROFESSIONAL RELATIONSHIPS

Professional relationships in health care settings are based on mutual trust and respect, and result in improved patient care.

Practice Standard:

MRT's must be able to practice effectively within interprofessional care teams to achieve the best possible outcomes for the patient. MRT's are responsible for communicating about and coordinating care provision with other members of the team, and must be able to take the appropriate action to address gaps and differences in judgment about care provision.

Indicators:

MRT's must:

- a. Use a wide range of communication and interpersonal skills to effectively establish and maintain professional relationships
- b. Demonstrate an understanding of and respect for the roles, knowledge, expertise and unique contribution of other members of the health care team for the condition of quality care

- c. Share knowledge with other members of the health care team to promote the best possible outcomes for patients
- d. Collaborate with other members of the health care team for the provision of quality care
- e. Participate effectively in interprofessional team meetings
- f. Resolve concerns about an order or treatment plan by:
 - i. Discussing the concern directly with the responsible health professional
 - ii. Providing a rationale and best practice evidence in support of the concern
 - iii. Identifying outcomes desired for resolution
 - iv. Documenting the concern and steps taken to resolve it in the appropriate record
- g. Performed delegated acts only when the following conditions have been met:
 - i. The health professional who is delegating the act is a member of a regulated health profession authorized by their health professions act to perform the controlled act
 - ii. The delegator is acting in accordance with any applicable legislation and any guidelines and policies of their regulatory body, and has not been restricted or prohibited from delegating this act
 - iii. The delegator has the knowledge, skills and judgment to perform and delegate the controlled act
 - iv. The MRT has the knowledge, skills and judgment to perform the act delegated to him safely, effectively and ethically given the circumstances of the situation
 - v. A written record of the delegation and certification of the MRT's competency is maintained
 - vi. The MRT complies with any conditions established by the delegator in order for the MRT to maintain authority to perform the controlled act
 - vii. Patient consent has been obtained
 - viii. The appropriate order authorizing the performance of the controlled act delegated to the MRT is in place

7. RECORDS AND REPORTING

Creating and maintaining records and reports are essential component of the professional practice of MRT's. MRT's records and reports provide information to other health care professionals about relevant aspects of patient care, treatment and assessment.

Practice Standard:

MRT's must be proficient in creating records, charts, incident and other reports that attest to the diagnostic, treatment, quality assurance, workplace and patient safety procedures that have been carried out. MRT's must have the knowledge, skills and judgment to record information that will adequately identify the subjects of all the images and data they create and treatments they administer. MRT's must produce records and reports that are accurate, complete, legible and timely.

Indicators:

MRT's must:

- a. Record results of quality control tests
- b. Record and report any equipment faults or problems
- c. Record and notify the patient's physician, radiologists, nuclear medicine physician or radiation oncologist of any allergies, abnormal test result, pregnancy or other contraindications to the ordered procedure
- d. Mark all images and data with the patients' identity
- e. Ensure all images and data are archived according to principles and guidelines established by the employment facility
- f. Record the patients' reactions to the treatment or procedure or any administered substances
- g. Record all pertinent aspects of patient care and all procedures performed, including emergency treatments and descriptions of, and reasons for, any deviations from the standard procedures on order forms, treatment prescriptions, patients health records or other relevant documentation
- h. Forward patients' records, images and pertinent data to appropriate recipients
- i. Record and inform patient and/or members of the health care team of any follow-up care required

In addition, MRT's in the Nuclear Medicine and Radiation Therapy specialty must:

- j. Record results of radiopharmaceutical assays, quality control and other tests, radioactive preparations and disposal methods of radioactive materials

In addition, MRT's in the Nuclear Medicine specialty must:

- k. Record receipt and disposal of radiopharmaceuticals, generators and radioactive materials
- l. Label radiopharmaceutical preparations
- m. Maintain radiopharmaceutical and pharmaceutical dispensing records

In addition, MRT's in the Radiation Therapy specialty must:

- n. Record and communicate any concerns regarding the treatment or treatment prescription to the appropriate radiation oncology personnel

8. CONTINUING COMPETENCY

MRT's must maintain competency in their current practice and continually improve their competency in order to respond to changes in the practice environments, advances in technology and the changing health care environment.

Practice Standard:

MRT's must have, maintain and apply the necessary knowledge, skills and judgment to ensure safe, effective and ethical outcomes for the patient. MRT's must maintain competency in their current area of practice and must refrain from acting if not competent. MRT's must obtain and maintain the necessary knowledge, skills and judgment to respond to changes in practice environments, advances in technology and other emerging issues. MRT's must participate in the College's Continuing Education and Working Hours Program as part of maintaining and improving their competency.

Indicators:

MRT's must:

- a. Maintain competency and refrain from performing activities that the MRT is not competent to perform

- b. Maintain and apply current and relevant scientific and professional knowledge and skills in their practice.
- c. Obtain and maintain the necessary knowledge, skills and judgment to respond to changes in practice environments, advances in technology and other emerging issues
- d. (such as Hybrid Imaging capabilities)
- e. Assume responsibility for professional development and for sharing knowledge with others
- f. Invest time and effort and other resources to improve their knowledge, skills and judgment
- g. Engage in a learning process to enhance practice
- h. Participate in the College's Continuing Education and Working Hours Program
- i. Collaborate with other members of the health care team to create quality practice settings

CAHPPEI thanks The College of Medical Radiation and Imaging Technologists of Ontario for permission in adopting their Standards of Practice, which serve as the foundation for our MRT Standards of Practice.