Standards of Practice

Newfoundland & Labrador College of Medical Radiation Technologists

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Introduction

The Standards of Practice have been developed by the Newfoundland and Labrador College of Medical Radiation Technologists (NLCMRT) to describe the expectation for the professional practice of Medical Radiation Technologists (MRTs) and X-Ray Health Professionals (XHPs). The general purpose for Standards of Practice document is to guide and direct the behavior of practitioners, who must ensure the public interest is met through the provision of safe and ethical care to patients and clients. Standards of Practice accomplish this by setting minimum, measurable expectations for practitioners across all practice areas and practice settings. These expectations are stated, and their related behaviors are described in the Standards of Practice document, which can also be used to determine if the standards are being achieved.

Ensuring the Standards of Practice are met is a shared responsibility between the MRTs, XHPs, and employers as follows:

- MRTs and XHPs are required to follow and meet the Standards of Practice in their daily practice regardless of their role and responsibilities.
- The NLCHP applies the Standards of Practice in all its proceedings, including assessment of continuing competence activities and responding to complaints against a registrant's practice.
- Standards of Practice are used by employers to support the development of organizational policies, job descriptions and performance-appraisal tools and when addressing professional practice issues. Employers support an MRT and XHP practice by ensuring that the essential resources are available to support MRTs and XHPs in meeting the Standards of Practice, and that organizational policies are consistent with the Standards of Practice.

The Scope of Practice statement for a Medical Radiation Technologist or X-Ray Health Professional states as follows:

> Medical Radiation Technologists and X-Ray Health Professionals who are educated, authorized and competent to use ionizing radiation, electromagnetism and other prescribed forms of energy for the purposes of diagnostic and therapeutic procedures. This includes the evaluation and interpretation of images and data relating to the procedures and the assessment of an individual before, during and after the procedures.

The following is **not** within the Scope of Practice of an XHP:

- Operation of units for the purpose of Fluoroscopy, Computed Tomography (CT) imaging, Mammography, Bone Mineral Densitometry (BMD), Interventional Radiology (IR), operating room radiography, and Mobile radiography or applying other prescribed forms of energy.
- Administration of pharmaceutical agents
- Administration of contrast media
- Administering substances by injection, inhalation or oral administration
- Administering contrast media, or putting an instrument, hand or digit
    - Beyond the opening of the urethra
    - Beyond the labia majora
    - Beyond the anal verge
    - Into an artificial opening of the body.
    - Tracheal suctioning of a tracheostomy.
- Performing a procedure on tissue below the dermis.

The methods for implementing each task may be determined by employer policies and procedures. In the event that the Standards of Practice set a standard that is higher than employer policy or procedure, the registrant must comply with the standard set by the Standards of Practice.

Under the NLCMRT Standards of Practice, registrants are expected to be:

Competent: meaning to have the necessary knowledge, skills and judgement to perform safely, effectively and ethically and to apply that knowledge, skill and judgement to ensure safe, effective and ethical outcomes for the patient. This means that registrants must maintain competence 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 that registrants must accept the consequences of their decisions and actions and act on the basis of what they, in their clinical judgement, believe is in the best interests of the patient

Registrants 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 possible outcomes for the patient. This means registrants 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 judgement about care provision.

1. Legislation, standards and ethics

To be registered with the NLCHP, registrants must meet all registration requirements. They must continue to educate themselves about practical, legal, ethical and other matters pertaining to the profession. Registrants must be competent, accountable and collaborative in their practice.

Practice Standard: Registrants must understand and adhere to the legislation governing the practice of the profession, the Standards of Practice set by the NLCMRT, the Code of Ethics of the NLCMRT and all regulatory requirements.

Indicators

Registrants must:

I. have the knowledge, skills and judgement to perform procedures undertaken in the course of the practice of the profession

II. take responsibility for decisions and actions, including those undertaken independently and those undertaken as a member of the team

III. collaborate with other members of the health care team to achieve the best possible outcomes for the patient

IV. adhere to all relevant provincial and federal legislation and guidelines governing the practice of the profession

V. Not engage in any acts of professional incompetence, professional misconduct, conduct unbecoming and report any concerns related to these acts and/or fitness to practice, and complies with duty to report.

- **Duty to report**: a legislated requirement outlining that a health professional who has knowledge, from direct observation or objective evidence, of conduct deserving of sanction of another health professional of the same profession shall report the known facts to the registrar.

VI. adhere to the *Health Professions Act and Medical Radiation Technologist regulations*

VII. Take appropriate action to ensure their own physical, psychological and emotional health does not negatively affect their ability to provide safe, competent, compassionate and ethical care

2. Equipment and materials

The practice of registrants entails the use of a wide range of equipment and materials. Registrants must know and understand the functions, capabilities, specifications and hazards of the equipment and materials they use during their practice.

Practice Standard: Registrants must have the knowledge, skills and judgement to select the appropriate equipment, ancillary accessories 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. Registrants must be skilled in making safe, efficient and effective use of resources to produce the desired examination information or deliver safe, effective treatment.

Indicators

Registrants must:

I. ensure the room is prepared for the procedure specified in the order

II. select and set up the equipment and materials needed for the procedure specified in the order

III. select the correct substances to be administered orally, by injection or inhalation, or into the body through an orifice

IV. prepare diagnostic or therapeutic substances as required

V. 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

VI. ensure that the results of quality control tests are acceptable and document and report if any issues are identified

VII. 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

VIII. 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

IX. determine, set and verify the technique and protocol to be used in the procedure

X. verify all required immobilization and/or beam modification devices

XI. make use of appropriate shielding devices

In addition, registrants in the practice area of radiation therapy must:

XII. prepare or construct immobilization or personalized devices and/or beam modification devices as required

In addition, registrants in the practice area of magnetic resonance must:

XIII. enforce and follow the necessary safety precautions for entry to the magnet room

In addition, registrants in the practice areas of nuclear medicine and radiation therapy must:

XIV. dispose of expired and unused radioactive materials and all administrative devices in accordance with legislation and established safety protocols

XV. store radiopharmaceuticals and radioactive materials according to manufacturers and Canadian Nuclear Safety Commission (CNSC) specification

3. Diagnostic and therapeutic procedures

Registrants employ ionizing radiation, radiopharmaceuticals, electromagnetism and soundwaves to create images and data that are part of diagnostic imaging examinations and treatments and/or therapies or that are used for defining and recording treatment parameters. These images may be dynamic, digital displays, three-dimensional models or templates. Registrants in the specialties of radiation therapy and nuclear medicine administer ionizing radiation to treat cancer and other diseases.

Registrants who apply ionizing radiation do so under the authority of and in accordance with the *Radiation Safety Act* and, where applicable, the CNSC and their respective regulations. Registrants are permitted to apply electromagnetism for magnetic resonance imaging. Registrants are also permitted to apply soundwaves for ultrasound if delegated.

Practice Standard: Registrants 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. In the case of procedures that use ionizing radiation, registrants use only the minimum amount of radiation necessary during the procedure. Registrants must be proficient in evaluating the images, data and tests relating to the procedures to ensure that the images, data and tests are acceptable.

Registrants must be able to administer ionizing radiation, radiopharmaceuticals, and electromagnetism for magnetic resonance imaging 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. Registrants must not apply or administer ionizing radiation or radiopharmaceuticals unless the conditions under the applicable legislation (including without limitation, the *Radiation Safety Act* and its regulations and the CNSC, its regulations and licences issued thereunder) have been met.

Indicators

Registrants must:

I. perform procedures involving the application or administration of ionizing radiation only when the conditions under the applicable legislation have been met (This includes, without limitation, the *Radiation Safety Act* and its regulations and the *CNSC*, its regulations and licences issued thereunder.)

II. ensure that the appropriate order authorizing the performance of the procedure is in place:

- for application of ionizing radiation: the order must be from a physician or other authorized health professional listed in the *Radiation Safety Act* or regulations
- for application of electromagnetism for magnetic resonance imaging procedures: the order must be from a physician or another authorized health professional

III. perform procedures, only in the course of engaging in the practice of the profession

IV. not perform procedures contrary to any terms, conditions or limitations placed upon the registrant's certificate of registration

V. have and apply the necessary knowledge, skills and judgement to perform and manage the outcomes of performing the procedure safely, effectively and ethically

VI. ensure positive patient identification has been performed prior to performing a procedure and ensure that patient informed consent has been obtained

VII. be responsible and accountable for performing the procedure and managing the outcomes having considered:

- the known risks to the patient in performing the procedure
- the predictability of the outcomes in performing the procedure

- whether the management of the possible outcomes is within the registrant's knowledge, skill and judgement given the situation
- any other factors specific to the situation to ensure the procedure is implemented safely, effectively and ethically

VIII. not perform any procedure or provide advice unless that procedure or advice is within the individual's scope of practice or they are authorized

IX. position the patient as required for the diagnostic or therapeutic procedure

X. ensure the area to be diagnosed or treated will be displayed on the resultant image or captured electronically

XI. use radiation protection devices and other patient protection devices as required

XII. instruct the patient on breathing and movement procedures

XIII. ensure that the orientation of the body and other pertinent parameters are marked correctly on the images and data

XIV. ensure the exposure provides optimum image quality while using minimal radiation

XV. ensure examination results (images and data) provide all the information requested in the order

XVI. ensure suboptimal images or incomplete exams, or treatments include proper documentation

XVII. confirm the procedures ordered are appropriate/accurate and if not, verify with appropriate medical professional and ensure that any changed orders have been documented

XVIII. carry out the procedure as required and advise the patient of any post-procedural care, and transfer the care of, or release the patient.

XIX. assess the patient's condition before, during and after the procedure or course of treatment

XX. respond to any change in the patient's condition before, during or after the procedure or course of treatment

In addition, registrants in the practice areas of radiological technology, nuclear medicine, and magnetic resonance must:

XXI. determine if the images and/or data are of sufficient diagnostic quality or if additional or repeat images are necessary

In addition, registrants in the practice area of radiation therapy must:

XXII. develop and/or interpret a treatment plan for each patient

XXIII. calculate treatment doses and duration of administration

XXIV. ensure use of record and verification systems

XXV. identify the treatment field and treatment volumes

XXVI. determine if the image verifies treatment parameters or if a repeat image is necessary

XXVII. assess and match the treatment verification image with the reference image and make required adjustments to patient position

XXVIII. select and/or verify treatment parameters

XXIX. administer treatment

In addition, registrants in the practice area of nuclear medicine must

XXX. Interpret the therapy or treatment dosage requested for each patient.

XXXI. Verify the correct dosage with the nuclear medicine physician.

XXXII. Accurately calculate and dispense the therapy or treatment dose.

XXXIII. Obtain and document written consent from the patient.

XXXIV. Have a second technologist verify the correct therapeutic dose has been dispensed, where applicable.

XXXV. Administer the therapy or treatment under the supervision of the nuclear medicine physician or be present while the physician administers it.

XXXVI. Upon completion, provide the patient with a written post-therapy/treatment care information sheet and release them.

4. Safe practice

Registrants operate equipment and apply ionizing radiation, electromagnetism for magnetic resonance imaging, soundwaves, and administer radiopharmaceuticals. All of these could be dangerous if used incorrectly. Registrants endeavor, 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: Registrants must have and maintain the knowledge, skills and judgement to practise 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, registrants must be competent and prepared to handle or to assist in the management of the situation.

Indicators

Registrants must:

I. observe all employer policies and relevant provincial and federal legislation and guidelines pertaining to health and safety, such as:

- *Health Professions Act and Medical Radiation Technologist* regulations
- *Radiation Safety Act* and its regulations
- *Occupational Health and Safety Act* and its regulations
- *CNSC* and its regulations and licences issued thereunder
- *Radiation Emitting Devices Act* and its regulations
- *Transportation of Dangerous Goods Act* and its regulations
- *Patient Health Information Act* and its regulations

- *Patient Safety Act and its regulations*
- *As Low As Reasonably Achievable* (ALARA) principle
- Health Canada's Technical Reports and Publications, including:

  - Safety Code 20A – X-Ray Equipment in Medical Diagnosis Part A: Recommended Safety Procedures for Installation and Use, 1980
  - Safety Code 30 – Radiation Protection in Dentistry, 1999
  - Safety Code 35 – Safety Procedures for the Installation, Use and Control of X-ray Equipment in Large Medical Radiological Facilities, 2024
  - Safety Code 36 – Radiation Protection and Quality Standards in Mammography - Safety Procedures for the Installation, Use and Control of Mammographic X-ray Equipment, 2013

I. conduct and document 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 or therapeutic procedure

II. document and take corrective action if quality control tests are not within acceptable limits

III. use substances only before their expiry time or date

IV. verify the patient's identity for all diagnostic or therapeutic procedures

V. prior to performing the procedure, ascertain whether there are any contraindications to the procedure, and notify (where appropriate) the appropriate medical professional of any contraindications and obtain direction to proceed, modify or halt the procedure. Document the contradiction and action taken.

VI. prior to administering a substance orally, by injection or inhalation, or into the body through an orifice, ascertain and document whether there are any contraindications to administering the substance to the patient and make necessary explanations, or referrals or implement necessary restrictions

VII. Select and administer the correct substance (e.g. drugs, treatment, contrast, radiopharmaceuticals), the correct dose, at the correct time, for the required duration, via the correct route (orally, topical, by injection, inhalation, or into the body through an orifice).

VIII. assess the patient's physical and cognitive limitations and ensure that the patient will not be expected to perform any task or movement that would cause physical harm take all reasonable precautions to ensure that no equipment can injure a patient

IX. use the ALARA principle to minimize patient exposure to radiation for the procedure

X. use shielding/protective devices where indicated

XI. 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

XII. use appropriate aseptic techniques and infection control procedures in the course of the diagnostic or therapeutic procedure

XIII. 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

XIV. ensure all positioning aids and immobilization devices maintain the patient's position appropriate to the diagnostic or therapeutic procedure according to departmental or facility policy

XV. assess the patient's condition before, during and after the course of treatment or procedure

XVI. where appropriate, remove markers and accessory equipment/devices before the patient is released

In addition, registrants in the practice area of magnetic resonance must:

XVII. ensure that there are no contraindications present that could harm the patient or will exclude the patient from having the examination

XVIII. ensure that all equipment and devices, both patient-specific and accessory, are MR conditional before being brought into the MR area

XIX. enforce 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, registrants in the practice area of nuclear medicine must:

XX. conduct personal and area contamination monitoring

XXI. decontaminate and shield where necessary in accordance with any licence(s) issued under the *CNSC*

XXII. use appropriate personal protection equipment when handling radioactive materials in accordance with any licence(s) issued under *the CNSC*

In addition, registrants in the practice area of radiation therapy must:

XXIII. label and orient all patient-specific ancillary equipment

5. Relationships with patients

Registrants have patient care as their main concern.

Practice Standard: Registrants must maintain clear and professional boundaries in relationships with patients and treat all patients with dignity and respect. Registrants must have the knowledge, skills and judgement to avoid placing patients at unnecessary risk of harm, pain or distress. Registrants must be able to provide appropriate responses to patient inquiries about procedures and related issues and accept the patient's autonomy and the right of the patient or the patient's substitute decision maker to consent to or refuse service. Registrants 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

Registrants must:

I. provide clear and understandable information to the patient or patient's substitute decision maker prior to, during and after the diagnostic or therapeutic procedure, using an interpreter if necessary

II. ensure that patients requiring interpreters receive clear, accurate, and comprehensive communication before, during, and after their procedure

III. give the patient or patient's substitute decision maker an opportunity to ask questions

IV. provide the patient or patient's substitute decision maker with answers to their questions within the scope of the profession's responsibility

V. refer questions of the patient or patient's substitute decision maker that are outside the scope of the profession's responsibility to an appropriate health professional for answers

VI. treat the patient with dignity and respect and in accordance with the Code of Ethics of the NLCMRT

VII. make modifications to procedures based on the patient's physical, medical and/or cognitive status and needs, based on the registrant's assessment of the patient's physical, medical and/or cognitive status and needs instruct the patient to remove only the clothing and items that will interfere with the diagnostic or therapeutic procedures

VIII. provide the patient with a clothing or sheet to cover areas where clothing was removed

IX. explain to the patient when and where the registrant might touch them and why

X. touch the patient in only those areas needed to facilitate carrying out the procedure

XI. keep all patient information confidential except when necessary to facilitate diagnosis or treatment of the patient, or when legally obliged or allowed to disclose such information

XII. comply with any applicable privacy legislation such as the *Personal Health Information Act* and its regulations

XIII. not engage in sexual misconduct, meaning any actual, threatened, or attempted sexualized behaviour or remarks by a registrant towards a patient or in a patient's presence

XIV. Maintain confidentiality when collecting, using, and disclosing personal information of patients by:

- Following privacy and confidentiality legislation (e.g., Personal Health Information Act), regulations, and organizational policies.
- Obtaining the patient's or substitute decision-maker's consent to collect, use, and disclose personal information.
- Identifying data that is considered personal information (e.g.: patient/staff member/ student names, address, phone number, email address, health-card number, social insurance number, health information, etc.).

- Restricting access to personal information, including that stored in archival systems such as electronic records (e.g.: log-off computer; close patient records/images when providing services to another patient; access patient information only if assigned to provide services to patient; obtain and discuss patients information in a private area, etc.)
- Refraining from unauthorized access to personal and health information and reporting and acting on incidents of unauthorized access.
- Securely and permanently destroying personal information, following organizational policies.

6. Professional relationships

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

Practice Standard: Registrants must be able to practice effectively within interprofessional care teams to achieve the best possible outcomes for the patient. Registrants are responsible for communicating about and coordinating care with other members of the team and must be able to take the appropriate action to address gaps and differences in judgement about care provision.

Indicators

Registrants must:

I. use a wide range of communication and interpersonal skills to effectively establish and maintain professional relationships

II. not physically, verbally, emotionally, financially, or sexually harass or abuse health care team members

III. demonstrate professionalism and treat all health care team members with respect in all contexts, including social media.

IV. demonstrate an understanding of and respect for the roles, knowledge, expertise and unique contribution by other members of the health care team for the provision of quality care

V. share knowledge with other members of the health care team to promote the best possible outcomes for patients

VI. collaborate with other members of the health care team for the provision of quality care

VII. participate effectively in interprofessional team meetings

VIII. resolve concerns about an order or treatment plan by:

- discussing the concern directly with the responsible health professional
- providing a rationale and best practice evidence in support of the concern
- identifying outcomes desired for resolution
- documenting the concern and steps taken to resolve it in the appropriate record

IX. perform delegated acts as per employer policies provided the registrant has the knowledge, skills and judgement to perform the act delegated to them safely, effectively and ethically given the circumstances of the situation

7. Records, reporting and documenting

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

Practice Standard: Registrants 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. Registrants must have the knowledge, skills and judgement to document information that will adequately identify the subjects of all the images and data they create and treatments they administer. Registrants must produce documents and reports that are accurate, complete, legible and timely.

Indicators

Registrants must:

I. document results of quality control tests

II. document and report any equipment faults or problems

III. document and notify (where required) the appropriate medical professional of any allergies, abnormal test results, pregnancy or other contraindications to the ordered procedure

IV. mark all images and data with the patient's identity

V. ensure all images and data are archived according to principles and guidelines established by the employer

VI. document the administered substance (e.g. drugs, treatment, contrast, radiopharmaceuticals), the dose, the time, any if there were any adverse reactions to the treatment or procedure or any administered substances

VII. document all pertinent aspects of patient care and all procedures performed, including emergency treatments and descriptions of, and reasons for, any deviations from standard procedures on order forms, treatment prescriptions, patient health records or other relevant documentation

VIII. ensure patients' records, images and pertinent data are sent to appropriate health care professional

IX. inform the patient and/or members of the health care team of any follow-up instructions and/or care required.

In addition, registrants in the practice area of nuclear medicine must:

X. document results of radiopharmaceutical assays, quality control and other tests, radioactive preparations and disposal methods of radioactive materials

XI. document receipt and disposal of radiopharmaceuticals, generators and radioactive materials

XII. label radiopharmaceutical preparations

XIII. maintain radiopharmaceutical and pharmaceutical dispensing records

In addition, registrants in the practice area of radiation therapy must:

XIV. document and communicate any concerns regarding the treatment or treatment prescription to the appropriate radiation oncology personnel

8. Continuing competence

Registrants must maintain competence in their current area of practice and continually improve their competence in order to respond to changes in practice environments, advances in technology and the changing health care environment.

Practice Standard: Registrants must have, maintain and apply the necessary knowledge, skills and judgement to ensure safe, effective and ethical outcomes for the patient. Registrants must maintain competence in their current area of practice and must refrain from acting if not competent. Registrants must obtain and maintain the necessary knowledge, skills and judgement to respond to changes in practice environments, advances in technology and other emerging issues. Registrants must participate in the Quality Assurance Program as part of maintaining and improving their competence.

Indicators

Registrants must:

I. maintain competence and refrain from performing activities that the registrant is not competent to perform

II. maintain and apply current and relevant scientific and professional knowledge and skills in their practice

III. obtain and maintain the necessary knowledge, skills and judgement to respond to changes in practice environments, advances in technology and other emerging issues

IV. assume responsibility for professional development and for sharing knowledge with others

V. invest time, effort and other resources to maintain and improve their knowledge, skills and judgement

VI. engage in a learning process to enhance practice

VII. collaborate with other members of the health care team to create quality practice settings

References:

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