Decision-Making Tool for ACMDTT Regulated Members

Appendices



Appendix 1: Health Professions Act

The *Health Professions Act* (HPA) provides a framework for governance and defines the requirements that regulated health professions in Alberta need to follow to provide safe and competent care to the public.

Health Professions Act (HPA): <u>acmdtt.com/hpa</u>*

The following passage from the HPA (Schedule 12, Section 3) defines the acceptable practice of medical diagnostic and therapeutic technologists.

Practice

3(1) In their practice, medical diagnostic and therapeutic technologists do one or more of the following:

- (a) apply ionizing radiation, non-ionizing radiation and other forms of energy to produce diagnostic images,
- (b) evaluate the technical sufficiency of the images,
- (c) use ionizing radiation, non-ionizing radiation and other forms of energy for treatment purposes,
- (d) teach, manage and conduct research in the science, techniques and practice of medical diagnostic and therapeutic technology,
- (d.1) assess the medical condition and needs of patients before, during and after the procedure described in clause (a), and
- (e) provide restricted activities authorized by the regulations.

(2) In their professional practice, electroneurophysiology technologists do one or more of the following:

- use sensitive electronic equipment to record and evaluate the electrical activity of patients' central and peripheral nervous systems to assist physicians, surgeons and other health professionals in diagnosing diseases, injuries and abnormalities;
- (a.01) evaluate the technical sufficiency of the recordings made under clause (a);
- (a.02) assess the medical condition and needs of patients before, during and after the procedure described in clause (a);
- (a.1) teach, manage and conduct research in the science, techniques and practice of electroneurophysiology;
- (b) provide restricted activities authorized by the regulations.

RSA 2000 cH-7 Sched. 12 s3;2003 c39 s9;2008 c34 s24; 2016 c9 s13

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To view the restricted activities referred to above, please see Appendix 7.

Appendix 2: Electroencephalography Competency Profile

• Electroencephalography Competency Profile: <u>acmdtt.com/enpcp</u>*



Competency Profile

Entry-to-Practice competencies for the electroneurophysiology profession of the Alberta College of Medical Diagnostic and Therapeutic Technologists (ACMDTT)

Electroencephalography



*Please note that all URLs provided in this document will redirect to the most up-to-date documents.

Under the *Health Professions Act* of Alberta (HPA), the ACMDTT is mandated with establishing standards and registering competent and ethical electroencephalography technologists who can provide high quality medical therapeutic and diagnostic care to the public.

This competency profile lists the competencies required of electroencephalography (EEG) technologists at entry-to-practice. Together with the ACMDTT Standards of Practice and Code of Ethics documents it defines the expectations of practitioners on entry to the profession.

The competencies have been validated through broad consultation with the profession in Alberta. They have been validated nationally and adopted by the Canadian Association of Electroencephalography Technologists, Inc. (CAET). ACMDTT has approved the use of the Canadian Board of Registration Electroencephalograph Technologists, Inc. (CBRET) certification examination as a requirement for entryto-practice in Alberta.

The ACMDTT entry-to-practice competencies were originally developed and approved in 2006. The College is committed to reviewing this documentation on a regular, cyclical basis. An extensive review and revision process took place in 2016 involving provincial and national practitioners, national partners, education providers and provincial and national employers. The new profile was approved on April 7, 2016.

The competency profile will be reviewed regularly with an aim to reflect current standards for high quality patient services within an evolving work environment.

Instructions for educational institutions

The ACMDTT entry-to-practice competencies identify the minimum learning outcomes required of the electroencephalography technologists at graduation. The College recognizes that achievement of entrylevel proficiency in each competency requires unique cognitive, psychomotor and affective learning. This entry-to-practice competency profile is not considered a curriculum guide. The educational institution should itself determine the level of education and learning activities required to meet the minimum entry-to-practice standard at the expected level of proficiency as set out by the College.

Structure

The entry-to-practice competencies for all professions of the ACMDTT are uniformly structured under the following areas of practice:

Professional Responsibilities

- 1.1 Legislation, Standards and Ethics
- 1.2 Collaborative Practice
- 1.3 Professionalism
- 1.4 Workplace Health and Safety

Clinical Procedures

- 2.1 Patient Care Fundamentals
- 2.2 Patient Assessment
- 2.3 Equipment
- 2.4 Standard Recordings
- 2.5 Customization and Adaptation of Recordings
- 2.6 Analysis, Reporting and Information Management

Definitions

Competency

The ability to perform a specific practice task with a defined level of proficiency

Competency statement

A job task in which an entry-level technologist is expected to demonstrate a prescribed level of proficiency

Cognitive learning

Learning involving knowledge and thinking skills

Psychomotor learning

Learning involving practical skills

Affective learning

Learning of attitudes and values that affect cognitive and psychomotor activities

Level of proficiency

The degree of mastery that a practitioner demonstrates in a job task. Levels of proficiency range on a continuous scale from learner, to entry-level, to mastery, to expertise, to leadership

Entry-level proficiency

The production of results consistent with generally accepted standards in the profession which involves:

- responding to commonly-occurring practice situations independently, within a reasonable timeframe, and obtaining results consistent with the generally accepted standards in the profession
- recognizing unusual, difficult to resolve and complex situations which are beyond the technologist's independent ability.
 Demonstrating the ability to handle these situations through:
 - consultation,
 - referral to a more experienced technologist,
 - consulting, or
 - research.

Assumptions

Several assumptions have underscored the development of the entry-to-practice competencies. These are:

- A strong foundation of cognitive, psychomotor and affective learning is a pre-requisite for success in achieving the competencies; this learning is initially developed through participation in an ACMDTT-approved educational program.
- Graduation from an ACMDTT-approved educational program, together with successful completion of the CBRET certification examination, is indicative of success in achieving the competencies.
- Learning is expanded through active participation in the provision of high quality medical diagnostic and therapeutic services. This results in levels of proficiency beyond entry-level.

Resources

Alberta Queen's Printer. (2000). *Health Professions Act: Revised Statutes of Alberta 2000.* Alberta: AQP.

Alberta Queen's Printer. (2009). *Medical Diagnostic and Therapeutic Technologists Profession Regulation*. Alberta: AQP.

Canadian Association of Medical Radiation Technologists. (2006, 2008) *Competency profiles.* Ottawa: CAMRT.

Canadian Medical Association (2014). *Requirements for Accreditation.* Ottawa: CMA.

1. Professional Responsibilities

1.1 Legislation, Standards and Ethics

| 1.1a | Follow regulations as set out by provincial and federal legislation, standards and codes of ethics governing the profession. |
|------|--|
| 1.1b | Recognize and support patient rights. |
| 1.1c | Provide care in a fair and unbiased manner. |
| 1.1d | Maintain patient privacy and confidentiality. |
| 1.1e | Act with honesty and integrity. |
| 1.1f | Take responsibility for personal decisions and actions. |
| 1.1g | Maintain professional boundaries. |
| 1.1h | Comply with employer policies and directives. |
| 1.1i | Maintain comprehensive and secure records, with appropriate access. |

1.2 Collaborative Practice

| 1.2a | Distinguish between the roles of healthcare team members. |
|------|--|
| 1.2b | Interact effectively as a member of a multidisciplinary healthcare team. |
| 1.2c | Provide relevant information to other healthcare providers. |
| 1.2d | Show respect for diversity of opinions and values. |
| 1.2e | Communicate effectively both orally and in writing. |
| 1.2f | Utilize medical terminology in professional communication. |
| 1.2g | Apply basic problem solving and conflict resolution techniques. |
| 1.2h | Provide constructive feedback to colleagues. |
| 1.2i | Respond professionally to feedback received from others. |

1.3 Professionalism

| 1.3a | Provide information about the profession to the general public. |
|------|--|
| 1.3b | Maintain currency in area of practice. |
| 1.3c | Maintain personal wellness consistent with needs of professional practice. |
| 1.3d | Practice within limits of personal knowledge and skills. |
| 1.3e | Manage time and workload efficiently. |
| 1.3f | Manage resources effectively. |
| 1.3g | Portray a professional demeanour in all activities. |
| 1.3h | Respond professionally to changes affecting the workplace. |
| 1.3i | Self-evaluate and develop clear performance goals to enhance professional effectiveness. |
| 1.3j | Undertake continuing professional development. |
| 1.3k | Participate in quality improvement initiatives. |
| 1.31 | Utilize research literature and professional resources. |
| 1.3m | Contribute to research-based initiatives. |
| 1.3n | Contribute to the education of students in the clinical environment. |

1.4 Workplace Health and Safety

| 1.4a | Recognize and address hazards in the workplace. |
|------|--|
| 1.4b | Apply the standards of the Workplace Hazardous Materials Information System (WHMIS) in the handling, use, storage and disposal of materials. |
| 1.4c | Comply with relevant workplace health and safety regulations. |
| 1.4d | Recognize an emergency situation and take appropriate action. |

2. Clinical Procedures

2.1 Patient Care Fundamentals

| 2.1a | Prepare the recording environment for the patient. |
|------|--|
| 2.1b | Apply standard precautions for infection prevention and control. |
| 2.1c | Perform aseptic techniques and maintain sterile fields. |
| 2.1d | Identify self and explain professional role. |
| 2.1e | Transfer patient safely. |
| 2.1f | Adapt communication based upon patient needs. |
| 2.1g | Perform procedures in a manner that maintains the integrity of patient ancillary equipment and services. |
| 2.1h | Perform procedures in a manner that optimizes patient dignity, comfort and safety. |
| 2.1i | Position the patient. |
| 2.1j | Perform CPR. |

2.2 Patient Assessment

| 2.2a | Verify patient identity. |
|------|---|
| 2.2b | Verify procedure ordered. |
| 2.2c | Ensure complete and correct documentation for procedure; address inconsistencies. |
| 2.2d | Obtain relevant patient history; identify aspects that may affect or contraindicate the procedure. |
| 2.2e | Recognize clinical characteristics that may impact EEG procedures, and respond appropriately. |
| 2.2f | Explain procedure to patient; facilitate patient's understanding by encouraging and responding to questions and concerns. |
| 2.2g | Refer patient questions and concerns to other healthcare providers where appropriate. |
| 2.2h | Respond to patient's family and supporters within the parameters of patient confidentiality. |
| 2.2i | Verify patient consent for procedure. |

2.3 Equipment

| 2.3a | Select electrodes, supplies and equipment appropriate to procedure. |
|------|---|
| 2.3b | Disinfect non-disposable electrodes, supplies and equipment. |
| 2.3c | Monitor functionality of equipment, correct or report as appropriate. |
| 2.3d | Ensure equipment quality control is performed. |
| 2.3e | Ensure quality control for leakage current is performed. |
| | |

2.4 Standard Recordings

| 2.4a | Measure and mark head using the International 10/20 System of Head Measurement and |
|------|--|
| | Electrode Placement. |

| 2.4b | Identify sites for placement of system reference and ground electrodes. |
|------|---|
| 2.4c | Prepare sites and apply electrodes. |
| 2.4d | Identify sites for, prepare sites, and apply electroocculogram (EOG) electrodes. |
| 2.4e | Identify sites for, prepare sites, and apply electrocardiogram (ECG) electrodes. |
| 2.4f | Maintain electrical safety for patient. |
| 2.4g | Maintain balanced electrode impedances. |
| 2.4h | Obtain technically acceptable recordings on adult, pediatric and neonatal patients according to CAET minimum technical standards. |
| 2.4i | Monitor system integrity and troubleshoot as required. |
| 2.4j | Identify and monitor physiological and non-physiological artefacts, correct as appropriate. |
| 2.4k | Utilize bipolar and referential montages for optimal recording. |
| 2.41 | Utilize sensitivity, filter and time base settings for optimal recording. |
| 2.4m | Utilize additional physiological monitors. |
| 2.4n | Recognize contraindications to hyperventilation. |
| 2.40 | Perform hyperventilation protocol. |
| 2.4p | Recognize contraindications to photic stimulation. |
| 2.4q | Perform photic stimulation protocol. |
| 2.4r | Perform eye opening/closing protocol. |
| 2.4s | Perform spontaneous sleep protocol. |
| 2.4t | Perform sleep deprived protocol. |
| 2.4u | Annotate relevant information throughout recording. |
| 2.4v | Remove electrodes and clean areas of application. |

2.5 Customization and Adaptation of Recordings

| 2.5a | Create and modify montages for optimal recording. |
|------|--|
| 2.5b | Adapt procedures based on patient physical, physiological and psychological presentation. |
| 2.5c | Adapt procedures for long-term monitoring. |
| 2.5d | Adapt procedures for electrocerebral silence (ECS) recording. |
| 2.5e | Perform visual reactivity tests for patients with impaired levels of consciousness. |
| 2.5f | Perform auditory reactivity tests for patients with impaired levels of consciousness. |
| 2.5g | Perform painful stimulation reactivity tests for patients with impaired levels of consciousness. |
| 2.5h | Recognize and respond to changes in patient's physical condition, behaviours and level of consciousness. |
| 2.5i | Recognize critical abnormalities in EEG listed in Appendix 1, and respond as appropriate. |
| 2.5j | Recognize seizures, and respond as appropriate. |
| 2.5k | Recognize and respond to medical emergencies. |
| | |

2.6 Analysis, Reporting and Information Management

| 2.6a | Localize EEG waveforms and patterns. |
|------|--|
| 2.6b | Recognize normal and normal variant EEG waveforms and patterns, consistent with patient age and state. |
| 2.6c | Recognize abnormal waveforms and patterns. |
| 2.6d | Analyze recording with respect to the classes of medication listed in Appendix 2. |

| 2.6e | Analyze recording with respect to artifacts and clinical conditions listed in Appendix 3 and critical abnormalities listed in Appendix 1. |
|------|---|
| 2.6f | Analyze recording with respect to patient presentation. |
| 2.6g | Correlate EEG with clinical event occurring during procedure. |
| 2.6h | Prepare recording and technical impression for reporting. |
| 2.6i | Utilize information and archival systems. |

Appendix 1

Appendix 1 lists the critical abnormalities that the EEG technologist must recognize in order to comply with Competencies 2.5i and 2.6e

| A1.1 | ECG changes |
|------|-------------------------|
| A1.2 | Electrocerebral silence |
| A1.3 | Epileptiform activity |
| A1.4 | Respiratory changes |
| A1.5 | Seizures |
| A1.6 | Significant EEG changes |

Appendix 2

Appendix 2 lists the classes of medication that the EEG technologist must have knowledge of in order to comply with Competency 2.6d

| A2.1 | Anticonvulsants |
|------|-----------------|
| A2.2 | Antidepressants |
| A2.3 | Antipsychotics |
| A2.4 | Barbiturates |
| A2.5 | Benzodiazepines |
| A2.6 | Narcotics |
| A2.7 | Sedatives |

Appendix 3

Appendix 3 lists the clinical conditions that the EEG technologist must recognize in order to comply with Competency 2.6e

| A3.1 | Cerebral structural abnormality |
|-------|---|
| A3.2 | Cerebral vascular disease/injury |
| A3.3 | Dementia |
| A3.4 | Drug toxicity |
| A3.5 | Edema |
| A3.6 | Encephalopathy |
| A3.7 | Epilepsy syndrome |
| A3.8 | Head injury |
| A3.9 | Involuntary movement |
| A3.10 | Level of consciousness |
| A3.11 | Metabolic disorders |
| A3.12 | Migraine |
| A3.13 | Psychogenic non-epileptic seizure |
| A3.14 | Psychosis |
| A3.15 | Seizure disorder |
| A3.16 | Skull and/or facial asymmetry, deformity or anomaly |
| A3.17 | Space occupying lesion |



www.acmdtt.com

Appendix 3: Magnetic Resonance Technology Competency Profile

Magnetic Resonance Technology Competency Profile: <u>acmdtt.com/mrcp</u>*

Canadian Association of Medical Radiation Technologists

COMPETENCY PROFILE

MAGNETIC RESONANCE

January 2014

Prepared by the Magnetic Resonance Competency Profile Task Group © CANADIAN ASSOCIATION OF MEDICAL RADIATION TECHNOLOGISTS Suite 1300, 180 Elgin St. Ottawa, Ontario K2P 2K3

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Entry-Level Competency Profiles for Medical Radiation Technologists

MAGNETIC RESONANCE

Principles and Definitions

The competency profiles describe the practice requirements of Medical Radiation Technologists (MRTs) at entry-level¹, in order to provide safe, effective and ethical patient care in a variety of work environments. The profiles will be of value to users both within and outside the profession, however their primary uses are to:

- > develop a blueprint for the CAMRT Certification Examinations
- > provide a guide for the curriculum of accredited education programs

The competency profile for each of the four MRT disciplines is distinct, although there is a common framework and some common content.

Each competency profile consists of a listing of competencies, defined as follows:

> A competency is a practice task that can be performed with entry-level proficiency.

Entry-level proficiency is characterized as follows:

- When presented with routine situations, the entry-level MRT performs relevant competencies in a manner consistent with generally accepted standards in the profession, independently, and within a reasonable timeframe. The entry-level MRT anticipates what outcomes to expect in a given situation, and responds appropriately, selecting and performing competencies in an informed manner.
- The entry-level MRT recognizes unusual, difficult to resolve and complex situations which may be beyond her / his capacity. The entry-level MRT takes appropriate steps to address these situations, which may include consulting with others, seeking supervision or mentorship, reviewing literature or documentation, or referring the situation to a more experienced MRT.

The competency profile for each discipline establishes a minimum standard for entry to the profession, and a foundation upon which to build:

Attainment at entry-to-practice of additional competencies, and higher levels of proficiency, is encouraged.

¹ *Entry-level* means initial entry into the profession.

Structural Framework

The format of the competency profiles is based upon modules, with each module representing a general area of practice. Within each module, related competencies and sub-competencies are clustered together in sections.

In situations where a given competency applies to a series of similar items (such as a list of equipment, a list of procedures, or a list of pathologies) appendices are used to avoid repetition.

The content of the modules and appendices for each discipline is shown below. The format for all four profiles is similar and the names of modules are similar. The competencies and sub-competencies in modules A and B are the same across the four disciplines, and wherever possible in the other modules similar competencies and sub-competencies are stated.

| Magnetic Resonance | Nuclear Medicine Technology | Radiation Therapy | Radiological Technology |
|--|--|--|--|
| Module A | Module A | Module A | Module A |
| Professional Practice | Professional Practice | Professional Practice | Professional Practice |
| Legal and Ethical | Legal and Ethical | Legal and Ethical | Legal and Ethical |
| Requirements | Requirements | Requirements | Requirements |
| Professional behaviour | Professional behaviour | Professional Behaviour | Professional behaviour |
| Communication | Communication | Communication | Communication |
| Decision making | Decision making | Decision making | Decision making |
| Inter-professional practice | Inter-professional practice | Inter-professional practice | Inter-professional practice |
| Use of resources | Use of resources | Use of resources | Use of resources |
| Quality Assurance | Quality Assurance | Quality Assurance | Quality Assurance |
| Research | Research | Research | Research |
| | | | |
| Module B | Module B | Module B | Module B |
| Patient Management | Patient Management | Patient Management | Patient Management |
| Patient interactions | Patient interactions | Patient interactions | Patient interactions |
| Patient safety | Patient safety | Patient safety | Patient safety |
| | | , | . attent satetj |
| Patient assessment & care | Patient assessment & care | Patient assessment & care | Patient assessment & care |
| Patient assessment & care | Patient assessment & care | Patient assessment & care | Patient assessment & care |
| Patient assessment & care Module C | Patient assessment & care Module C | Patient assessment & care Module C | Patient assessment & care Module C |
| Patient assessment & care Module C Health and Safety | Patient assessment & care Module C Health and Safety | Patient assessment & care Module C Health and Safety | Patient assessment & care Module C Health and Safety |
| Patient assessment & care Module C Health and Safety Infection control& | Patient assessment & care Module C Health and Safety Infection control & | Patient assessment & care Module C Health and Safety Infection control and | Patient assessment & care Module C Health and Safety Infection control & |
| Patient assessment & care Module C Health and Safety Infection control& materials handling | Patient assessment & care Module C Health and Safety Infection control & materials handling | Patient assessment & care Module C Health and Safety Infection control and materials handling | Patient assessment & care Module C Health and Safety Infection control & materials handling |
| Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection | Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection |
| Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection MR Screening | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices | Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices |
| Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection MR Screening MR bioeffects | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiations safety | Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices Radiation safety education | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiation safety education |
| Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection MR Screening MR bioeffects | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiations safety education | Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices Radiation safety education | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiation safety education |
| Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection MR Screening MR bioeffects Emergency procedures | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiations safety education Emergency procedures | Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices Radiation safety education Emergency procedures | Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiation safety education Emergency procedures |

| Module D | Module D | Module D | Module D |
|-------------------------------|---------------------------|---------------------------|-------------------------------|
| Operation of Equipment | Operations of Equipment | Operation of Equipment | Operation of Equipment |
| Principles of MR | Physics & instrumentation | Principles of radiation | Principles of radiological |
| equipment | | therapy | equipment |
| Equipment quality control | Equipment operation | Equipment operation | Image acquisition & |
| | | | management |
| Image acquisition | Equipment quality control | Equipment quality control | Equipment quality control |
| Image quality | Image & data quality | | Image quality |
| Other imaging modalities | Other imaging modalities | | Other imaging modalities |
| | | | |
| Module E | Module E | Module E | Module E |
| Procedure Management | Procedure Management | Procedure Management | Procedure Management |
| Clinical principles | Radiopharmacy & | Simulation | Clinical principles |
| | Laboratory procedures | | |
| Imaging procedures | Clinical procedures | Accessory devices | Imaging procedures |
| Pharmaceutical | Diagnostic procedures | Dosimetry | Pharmaceutical |
| administration | | | administration |
| | Therapeutic procedures | Treatment | |
| | Pharmaceutical | Clinical principles | |
| | Administration | | |
| | ECG Procedures (12-lead) | Treatment delivery | |
| | | Patient care | |
| | | | |
| Appendix 1 | Appendix 1 | Appendix 1 | Appendix 1 |
| Patient interactions | Patient interactions | Patient interactions | Patient interactions |
| Appendix 2 | Appendix 2 | Appendix 2 | Appendix 2 |
| Common pathologies & | Equipment | Malignant tumours | Imaging systems |
| anomalies | | | |
| Appendix 3 | Appendix 3 | Appendix 3 | Appendix 3 |
| Imaging procedures | Body systems & | Non-malignant & benign | Pathologies |
| | pathologies | conditions | |
| Appendix 4 | Appendix 4 | Appendix 4 | Appendix 4 |
| Pharmaceuticals | Pharmacologic & dietary | Clinical oncology | Imaging procedures |
| | agents | | |
| | Appendix 5 | | Appendix 5 |
| | Procedures | | Accessory equipment |

Relationship between the Competency Profiles and the CAMRT Certification Examinations

All competencies must be achieved and assessed in either an academic, simulated or clinical environment at an accredited education program. An Assessment Environment (AE) is indicated with each competency in the profile as a guide for programs. It is realized, based on many variable factors that an assessment environment may need to change over the term of the profile given changes in practice, or may vary from program to program.

With those competencies that refer to lists provided in the appendices, it is also realized that the same AE may not apply to everything listed based on exam frequency, and regional/facility differences. Note comments in the profile.

It is the responsibility of the education program to ensure, through assessment of competencies in the most appropriate environment that the graduate technologist is competent to practice safely and effectively at the entry to practice level in the current healthcare environment.

The CAMRT certification examinations are delivered in a multiple-choice format, and are intended to assess cognitive and affective learning related to performance of the competencies. The certification exam does not test all competencies listed in the competency profile. The list of competencies tested and the weighting applied to the competencies for testing purposes is described in the exam blueprint.

In provinces that regulate the practice of MRTs, regulatory authorities (with the exception of Quebec) require CAMRT Certification for registration purposes. However, since the certification examinations are national in scope, they do not test provincially-unique requirements.

Development and Updating of the Competency Profiles

Re-validation of the competency profiles, takes place approximately every five years. This involves an initial critical review by an expert committee, followed by consultation with regulators, education programs, practitioners and service department heads / managers.

Due to rapid changes in technology and practice certain portions of the profile may be validated more frequently to ensure that the profiles accurately reflect workplace needs.

Updated profiles are subject to approval by the CAMRT Board of Directors.

Additional Notes

In order to fully understand and utilize the competency profiles, it is important to be aware of the following principles:

- 1. The competencies in each profile are interdependent, each competency informing and qualifying other competencies. Competencies are not intended to be applied in isolation.
- 2. The competencies should be considered as an array of abilities which the MRT brings to the workplace. The MRT performs appropriate competencies in a manner consistent with the situation at hand, while complying with organizational directives. The competencies are not intended to be applied in the sequence listed, nor should they be considered a protocol.
- 3. Performance of a competency requires the application of learning which may involve the cognitive domain (knowledge and thinking skills), the affective domain (attitudes and values) and the psychomotor domain (manual skills).
- 4. The competency profiles define the key learning outcomes that should be the product of accredited education programs. They do not constitute a complete educational curriculum nor do they define a learning process; these should be developed by appropriately qualified program personnel.
- 5. The profile is intended to set a meaningful national standard for each discipline without being overly prescriptive. It provides a guide for curriculum development. Curriculum should incorporate the expectations stated in the definition of entry-level proficiency.

| Module | A Professional Practice | AE |
|--------|---|----|
| A.1 | Legal and Ethical Requirements | |
| A.1.1 | Practice within provincial scope of practice | С |
| A.1.2 | Comply with federal and provincial legislation and regulations affecting the practice of medical | С |
| | radiation technology | |
| A.1.3 | Comply with requirements of provincial regulatory body, including applicable Standards of Practice | Α |
| | and sexual abuse prevention guidelines | |
| A.1.4 | Practice within provincial regulatory or national association code of ethics, as relevant | С |
| A.1.5 | Practice in a manner that recognizes patient's legal rights | С |
| A.2 | Professional Behaviour | |
| A.2.1 | Present a professional appearance and manner | С |
| A.2.2 | Interact respectfully with others | С |
| A.2.3 | Provide care in an unbiased manner | С |
| A.2.4 | Practice within limits of personal knowledge and skills | С |
| A.2.5 | Comply with organizational policies and directives | С |
| A.2.6 | Maintain thorough and complete workplace documentation | С |
| A.2.7 | Respond professionally to changes impacting the practice environment | Α |
| A.2.8 | Utilize techniques to manage personal stress in the workplace | С |
| A.2.9 | Utilize basic conflict management techniques | S |
| A.2.10 | Respond professionally to feedback received from others | С |
| A.2.11 | Provide constructive feedback to others | S |
| A.2.12 | Provide information and guidance to students in the medical radiation technology workplace | Α |
| A.2.13 | Engage in reflective practice | C |
| A.2.14 | Implement a learning plan to enhance personal knowledge and skills | С |
| A 2 15 | Demonstrate basic knowledge of current and emerging issues in health care relevant to the practice of | Α |
| A.2.13 | medical radiation technology | |
| Δ 2 16 | Demonstrate basic knowledge of current and emerging practices and technological developments in | Α |
| 7.2.10 | the field of medical radiation technology | |
| A.3 | Communication | |
| A.3.1 | Use effective written communication skills | Α |
| A.3.2 | Use effective oral communication skills | C |
| A.3.3 | Use effective interpersonal skills | C |
| A.3.4 | Utilize medical terminology in professional communication | C |
| Δ35 | Explain complex and technical matters related to medical radiation technology to the level of the | Α |
| / | respondent's understanding | |
| A.4 | Decision Making | |
| A.4.1 | Appraise decision options based on best practice evidence, clinical information, resource implications | С |
| A.4.1 | and other contextual factors | |
| A.4.2 | Use professional judgement to reach decisions | C |
| A.4.3 | Take responsibility for decisions and actions | C |
| A.5 | Interprofessional Practice | |
| A.5.1 | Recognize the roles of health care professionals commonly encountered in the medical radiation technology workplace | A |
| A.5.2 | Contribute productively to teamwork and collaborative processes | С |

| A.5.3 | Contribute knowledge of medical radiation technology in collaborative practice | С |
|-------|--|---|
| A.6 | Use of Resources | |
| A.6.1 | Prioritize workflow to optimize patient care | S |
| A.6.2 | Prioritize workflow to optimize use of resources | S |
| A.6.3 | Monitor inventory of materials and supplies, and respond | С |
| A.7 | Quality Assurance | |
| A 7 1 | Maintain awareness of factors in the clinical environment that may affect delivery of care, and take | С |
| A.7.1 | appropriate action | |
| A.7.2 | Participate in activities that support a quality assurance program | Α |
| A.7.3 | Apply principles of risk management | Α |
| A.8 | Research | |
| A.8.1 | Demonstrate basic knowledge of research methodology and ethics | Α |
| A.8.2 | Critically appraise professional literature to assess relevance to practice | Α |
| A.8.3 | Participate in activities that require application of research methodology | Α |

| Module B Patient Management AE | | |
|--------------------------------|---|-----|
| B.1 | Patient Interactions | |
| B.1.1 | Respect the dignity, privacy and autonomy of the patient | C |
| B.1.2 | Maintain professional boundaries | C |
| B.1.3 | Recognize and respond appropriately to cultural, religious and socio-economic variables affecting | S |
| | patient management | |
| B.1.4 | Adapt interactions to enhance communication with the patient and support persons. | C |
| B.1.5 | Provide complete information about procedures to patient and support persons and verify | С |
| | understanding | |
| B.1.6 | Respond to questions from patient and/or support persons or direct them to appropriate personnel | С |
| B.1.7 | Ensure ongoing informed consent to procedures | С |
| B.2 | Patient Safety | |
| B.2.1 | Ensure a safe physical environment | C |
| B.2.2 | Verify patient identity | C |
| B.2.3 | Verify accuracy and completeness of pre-procedure documentation | C |
| B.2.4 | Transport patient safely | C |
| B.2.5 | Transfer patient safely | C |
| B.2.6 | Utilize immobilization devices | C |
| B.2.7 | Ensure proper function of patient's supportive devices and equipment | C |
| B.2.8 | Assess and respond to any changes in patient condition | C |
| B.2.9 | Recognize medical emergencies, and respond | S |
| B.2.10 | Ensure post-procedure transfer of care | C |
| B.2.11 | Verify accuracy and completeness of post-procedure documentation | C |
| B.2.12 | Ensure entry of information to data archiving system | C |
| B.3 | Patient Assessment and Care | |
| B.3.1 | Enhance patient comfort | С |
| B.3.2 | Review clinical history provided relative to requested procedure and address discrepancies | С |
| B.3.3 | Obtain information from patient or support person | С |
| B.3.4 | Identify clinical relevant details and respond | C |
| B.3.5 | Determine patient's pregnancy status and respond | С |
| B.3.6 | Assess patient for contraindications to procedure and respond | С |
| B.3.7 | Perform venipuncture | С |
| B.3.8 | Assist with administration of pharmaceuticals | C |
| B.3.9 | Adapt procedures based upon patient's physical and cognitive condition | C |
| B.3.10 | Provide care for patient's physiological needs | C |
| B.3.11 | Provide patient interventions as listed in Appendix 1 | C/S |
| B.3.12 | Advise patient of necessary post-procedure follow-up | С |

| Modul | e C Health and Safety | AE |
|--------|---|----|
| C.1 | Infection Control and Materials Handling | |
| C.1.1 | Employ routine practices for infection control | С |
| C.1.2 | Employ transmission-based precautions | С |
| C.1.3 | Follow standardized procedure for patients with compromised immunity | Α |
| C.1.4 | Use aseptic technique | С |
| C.1.5 | Use sterile technique | Α |
| C.1.6 | Follow standardized procedures for handling and disposing of sharps, and contaminated and | С |
| | biohazardous materials | |
| C.2 | Self-Protection | |
| C.2.1 | Utilize protective equipment | С |
| C.2.2 | Employ proper body mechanics | С |
| C.2.3 | Ensure a safe working environment | С |
| C.3 | MR Screening | |
| C.3.1 | Determine suitability of items for admission into MR environment. | С |
| C.3.2. | Determine suitability of objects in / on patient's body for MR environment. | С |
| C.3.3 | Screen and educate all persons entering MR environment | С |
| C.3.4 | Verify completion of screening forms | С |
| C.4 | MR Bio-effects | |
| C.4.1 | Provide hearing protection. | С |
| C.4.2 | Monitor and respond to potential bio-effects of static magnetic fields. | С |
| C.4.3 | Monitor and respond to potential bio-effects of time-varying (gradient) magnetic fields | С |
| C.4.4 | Monitor and respond to potential bio-effects of radiofrequency (RF) field. | С |
| C.4.5 | Ensure safe practices in RF coil and equipment cable placement. | С |
| C.5 | Emergency Procedures | |
| C.5.1 | Implement procedure for quench. | S |
| C.5.2 | Implement procedure for projectile in magnetic field. | S |
| C.5.3 | Implement procedure for fire. | S |

| Module D Operation of Equipment AI | | |
|------------------------------------|---|---|
| D.1 | Principles of MRI Equipment | |
| D.1.1 | Apply knowledge of magnet systems. | A |
| D.1.2 | Apply knowledge of RF coils and systems. | C |
| D.1.3 | Apply knowledge of gradient coils and systems. | A |
| D.1.4 | Perform shimming. | С |
| D.1.5 | Apply knowledge of cooling systems. | A |
| D.1.6 | Utilize computer systems. | C |
| D.1.7 | Utilize MR ancillary equipment. | C |
| D.2 | Equipment Quality Control | |
| D.2.1 | Assess performance of RF coils, and respond. | С |
| D.2.2 | Assess cryogen levels, and respond | С |
| D.2.3 | Assess performance of cryogen reclamation system, and respond. | С |
| D.2.4 | Assess performance of magnet, and respond. | A |
| D.2.5 | Assess performance of ancillary equipment, and respond. | С |
| D.3 | Image Acquisition | |
| D.3.1 | Select and optimize pulse sequences. | С |
| D.3.2 | Select and optimize imaging parameters | C |
| D.3.3 | Select and optimize imaging options. | С |
| D.3.4 | Select appropriate type of data acquisition technique. | C |
| D.3.5 | Utilize digital networking and archiving system. | C |
| D.4 | Image Quality | |
| D.4.1 | Optimize signal to noise ratio. | C |
| D.4.2 | Optimize contrast to noise ratio. | C |
| D.4.3 | Optimize spatial resolution. | C |
| D.4.4 | Optimize scan time. | C |
| D.4.5 | Optimize imaging parameters and options. | C |
| D.4.6 | Evaluate tissue weighting, and respond. | C |
| D.4.7 | Evaluate image artifacts, and respond. | C |
| D.4.8 | Evaluate precessional frequencies utilizing Larmor equation, and respond. | C |
| D.5 | Other Imaging Modalities | |
| D.5.1 | Apply knowledge of basic principles of PET/CT | A |
| D.5.2 | Apply knowledge of basic principles of radiological technology | A |
| D.5.3 | Apply knowledge of basic principles of diagnostic ultrasound | A |
| D.5.4 | Apply knowledge of basic principles of SPECT/CT | A |

| Module E Procedure Management | | |
|-------------------------------|---|-------|
| E.1 | Clinical principles | |
| E.1.1 | Apply knowledge of anatomy and physiology. | А |
| E.1.2 | Differentiate anatomical structure on images | С |
| E.1.3 | Apply knowledge of pathologies, anomalies and conditions listed in Appendix 2 | А |
| E.1.4 | Apply knowledge of the effects of pharmaceutical agents listed in Appendix 4 as they relate to procedures | A |
| E.2 | Imaging Procedures listed in Appendix 3 ** | |
| E.2.1 | Correlate clinical information, reports and previous imaging studies. | C/S/A |
| E.2.2 | Select optimal RF coil. | C/S/A |
| E.2.3 | Prepare and position patient for procedure. | C/S/A |
| E.2.4 | Determine limit and extent of image coverage. | C/S/A |
| E.2.5 | Utilize optimal imaging planes. | C/S/A |
| E.2.6 | Select appropriate imaging parameters and options. | C/S/A |
| E.2.7 | Recognize signal characteristics consistent with common pathologies and anomalies listed in | C/S/A |
| | Appendix 2 related to procedures in Appendix 3. | |
| E.2.8 | Ensure appropriate anatomical coverage. | C/S/A |
| E.2.9 | Ensure optimal pathological visualization. | C/S/A |
| E.2.10 | Apply specific absorption rate reduction practices. | C/S/A |
| E.2.11 | Activate, monitor and manage acquisition | C/S/A |
| E.2.12 | Assess need for additional sequences. | C/S/A |
| E.2.13 | Perform post processing and measurements on images. | C/S/A |
| E.2.14 | Verify accuracy and completeness of acquired data. | C/S/A |
| E.3 | Pharmaceutical Administration | |
| E.3.1 | Asses patient for contraindications to contrast media and respond | С |
| E.3.2 | Prepare contrast media | С |
| E.3.3 | Prepare patient and administer contrast media via appropriate route | С |
| E.3.4 | Utilize power injector | С |
| E.3.5 | Prepare and administrate pharmaceutical agents | С |
| E.3.6 | Recognize and respond to adverse reactions | С |

**

Frequency of the exam and regional and facility differences will dictate the assessment environment. However, every attempt must be made to assess performance in the clinical environment when possible.

Magnetic Resonance Imaging Appendix 1: Patient Interventions This Appendix lists the patient interventions referred to in competency B.3.11

| | Intervention |
|-----|---------------------------------------|
| 1.1 | Assist with administration of oxygen. |
| 1.2 | Assist with suctioning. |
| 1.3 | Administer bedpans and urinals. |
| 1.4 | Monitor vital signs. |
| 1.5 | Perform CPR. |

Magnetic Resonance Imaging Appendix 2: Common Pathologies and Anomalies This Appendix lists the pathologies and anomalies referred to in competencies E.1.3 and E.2.7

| | 1. Head | | 2. Abdomen | | 3. Spine |
|--------|---|--------|------------------------------------|--------|--|
| 2.1.1 | Abscess | 2.2.1 | Abscess | 2.3.1 | Abscess |
| 2.1.2 | Acoustic neuroma | 2.1.2 | Adenoma | 2.3.2 | Ankylosing spondylitis |
| 2.1.3 | Agenesis of the corpus callosum | 2.2.3 | Aneurysm | 2.3.3 | Arthritis |
| 2.1.4 | Aging changes / Dementia /Alzheimer's | 2.2.4 | Angiomyolipoma | 2.3.4 | Bone contusions |
| 2.1.5 | Aneurysm | 2.2.5 | Biliary tree obstruction | 2.3.5 | Cauda-equina syndrome |
| 2.1.6 | Aqueduct Stenosis | 2.2.6 | Carcinoma | 2.3.6 | Cysts |
| 2.1.7 | Arterial dissection | 2.2.7 | Cholecystitis | 2.3.7 | Degenerative disc disease |
| 2.1.8 | Arteriovenous malformation (AVM) | 2.2.8 | Cholelithiasis | 2.3.8 | Diastematomyelia (split cord) |
| 2.1.9 | Astrocytoma | 2.2.9 | Cirrhosis | 2.3.9 | Discitis |
| 2.1.10 | Cavernous angioma | 2.2.10 | Cushing syndrome | 2.3.10 | Dislocation |
| 2.1.11 | Chiari Malformation | 2.2.11 | Cyst | 2.3.11 | Ependymoma |
| 2.1.12 | Cysts | 2.2.12 | Dissection | 2.3.12 | Free herniated disc fragment (sequestered) |
| 2.1.13 | Dandy-Walker malformation | 2.2.13 | Fatty Liver | 2.3.13 | Hemangioma |
| 2.1.14 | Encephalitis | 2.2.14 | Fistula | 2.3.14 | Hematomas |
| 2.1.15 | Ependymoma | 2.2.15 | Focal nodular hyperplasia (FNH) | 2.3.15 | Hemorrhage |
| 2.1.16 | Glioblastoma multiforme (GBM) | 2.1.16 | Hemangioma | 2.3.16 | Herniated disc |
| 2.1.7 | Hemangioma | 2.2.17 | Hemorrhage | 2.3.17 | Meningioma |
| 2.1.18 | Hemorrhage | 2.2.18 | Hepatic abscess | 2.3.18 | Multiple myeloma |
| 2.1.19 | Hydrocephalus | 2.2.19 | Hepatic cell carcinoma (HCC) | 2.3.19 | Multiple Sclerosis |
| 2.1.20 | Ischemia | 2.2.20 | Horseshoe kidney | 2.3.20 | Neurofibromatosis |

| 2.1.21 | Medulloblastoma | 2.2.21 | Inflammatory bowel | 2.3.21 | Osteomyelitis |
|--------|---|--------|-------------------------------|--------|------------------------|
| 2.1.22 | Meningioma | 2.2.22 | Iron deposition | 2.3.22 | Osteophytes |
| 2.1.23 | Meningitis | 2.2.23 | Kidney carcinoma | 2.3.23 | Pathological fractures |
| 2.1.24 | Mesial temporal / sclerosis / epilepsy/seizures | 2.2.24 | Liver metastases | 2.3.24 | Scoliosis |
| 2.1.25 | Metastatic tumors | 2.2.25 | Metastases | 2.3.25 | Spina bifida |
| 2.1.26 | Multiple Sclerosis | 2.2.26 | Nephrogenic systemic fibrosis | 2.3.26 | Spondylolisthesis |
| 2.1.27 | Neuroblastoma | 2.2.27 | Pancreatitis | 2.3.27 | Syrinx |
| 2.1.28 | Oligodenroglioma | 2.2.28 | Polycystic kidney disease | 2.3.28 | Tethered cord |
| 2.1.29 | Optic neuritis | 2.2.29 | Renal transplant | | |
| 2.1.30 | Pituitary macroadenoma | 2.2.30 | Stenosis | | |
| 2.1.31 | Pituitary microadenoma | 2.2.31 | Wilm's tumor | | |
| 2.1.32 | Retinoblastoma | | | | · |
| 2.1.33 | Schwannoma | | | | |
| 2.1.34 | Shearing injuries | | | | |
| 2.1.35 | Stroke / cerebrovascular accident (CVA) | | | | |
| 2.1.36 | Subarachnoid hemorrhage | | | | |
| 2.1.37 | Subdural hematoma | | | | |
| 2.1.38 | Transient ischemic attack (TIA) | | | | |
| 2.1.39 | Trigeminal neuralgia | | | | |
| 2.1.40 | Vascular Stenosis | | | | |
| 2.1.41 | Venous sinus occlusion | | | | |

| | 4. Musculoskeletal | | 5. Thorax | | 6. Breast |
|--------|--------------------------------|------------|--------------------|-------|-------------------------------------|
| | System | | | | |
| 2.4.1 | Abscess | 2.5.1 | Aneurysm | 2.6.1 | Abscess |
| 2.4.2 | Avascular necrosis | 2.5.2 | Arterial septal | 2.6.2 | Benign tumors – |
| | (AVN) | | defect (ASD) | | fibroadenoma |
| 2.4.3 | Avulsion fractures | 2.5.3 | Cardiomegaly | 2.6.3 | Cysts – fibrocystic disease |
| 2.4.4 | Bone contusions | 2.5.4 | Coarctation | 2.6.4 | Ductal cancer in situ (DCIS) |
| 2.4.5 | Cartilage defects | 2.5.5 | Dissection | 2.6.5 | Implants – rupture / scar tissue |
| 2.4.6 | Cysts | 2.5.6 | Ischemic heart | 2.6.6 | Inflammatory |
| | | | disease | | carcinoma |
| 2.4.7 | Dislocation | 2.5.7 | Myocardial | 2.6.7 | Malignant tumors |
| | | | infarction | | |
| 2.4.8 | Edema | 2.5.8 | Мухота | 2.6.8 | Metastatic disease |
| 2.4.9 | Hemangioma | 2.5.9 | Situs inversus | 2.6.9 | Scarring and |
| 24.10 | | | Thursehosis | | radiation changes |
| 2.410 | Hip dyspiasia | 2.5.10 | | | |
| 2.4.11 | Labral defects | 2.5.11 | | | |
| | | | regurgitation | | |
| 2.4.12 | Ligament tears | 2.5.12 | Ventricular septal | | |
| | 8 | | defect (VSD) | | |
| 2.4.12 | Lipoma | | | | |
| 2.4.14 | Meniscal defects | | | | |
| 2.4.15 | Metastatic bone lesions | | | | |
| 2.4.16 | Morton's neuroma | | | | |
| 2.4.17 | Osteoarthritis | | | | |
| 2.4.18 | Osteomyelitis | | | | |
| 2.4.19 | Pathological fractures | | | | |
| 2.4.20 | Peripheral vascular disease | | | | |
| 2.4.21 | Sarcoma | | | | |
| 2.4.22 | Stress fractures | | | | |
| 2.4.23 | Subluxation | | | | |
| 2.4.24 | Tendon tears | | | | |
| 2.4.25 | Tendonitis | | | | |
| | | | | | |

| | 7. Female Pelvis | | 8. Male Pelvis | | 9. Neck |
|-------|----------------------|-------|--------------------|-------|---------------|
| 2.7.1 | Bicornuate uterus | 2.8.1 | Benign prostatic | 2.9.1 | Abscess |
| | | | hyperplasia (BPH) | | |
| 2.7.2 | Bladder Carcinoma | 2.8.2 | Bladders carcinoma | 2.9.2 | Cysts |
| 2.7.3 | Carcinoma | 2.8.3 | Fistula | 2.9.3 | Squamous cell |
| | | | | | carcinoma |
| 2.7.4 | Cysts | 2.8.4 | Prostate carcinoma | | |
| 2.7.5 | Fistula | | | | |
| 2.7.6 | Leiomyoma (fibroids) | | | | |
| 2.7.7 | Malignant ovarian | | | | |
| | neoplasms | | | | |
| 2.7.8 | Polycystic ovarian | | | | |
| | disease | | | | |
| 2.7.9 | Septate uterus | | | | |

Magnetic Resonance Imaging Appendix 3: Imaging Procedures This Appendix lists the imaging procedures referred to by the competencies in section E.2

| | Imaging Procedure | | Structure |
|-----|-------------------|--------|--|
| | | 3.1.1 | Temporal mandibular joints |
| | | 3.1.2 | Shoulder |
| | | 3.1.3 | Upper arm |
| | | 3.1.4 | Elbow |
| | | 3.1.5 | Forearm |
| | | 3.1.6 | Wrist |
| | | 3.1.7 | Hand |
| | | 3.1.8 | Pelvis |
| 3.1 | Musculoskeletal | 3.1.9 | Sacro-iliac joint |
| | | 3.1.10 | Нір |
| | | 3.1.11 | Thigh |
| | | 3.1.12 | Knee |
| | | 3.1.13 | Calf |
| | | 3.1.14 | Ankle |
| | | 3.1.15 | Foot |
| | | 3.1.16 | Arthrogram |
| | | 3.1.17 | Vascular MR angiography (MRA), MR venography (MRV) |
| | | 3.2.1 | Brain |
| | | 3.2.2 | Cranial nerves |
| | | 3.2.3 | Internal auditory canal |
| | | 3.2.4 | Orbits |
| | | 3.2.5 | Temporal lobes |
| 3.2 | Head and Neck | 3.2.6 | Pituitary gland |
| | | 3.2.7 | Posterior fossa |
| | | 3.2.8 | Sinuses |
| | | 3.2.9 | Soft tissues neck |
| | | 3.2.10 | Pharynx |
| | | 3.2.11 | Vascular MRA and MRV |
| | | 3.3.1 | Cervical |
| | | 3.3.2 | Thoracic |
| | | 3.3.3 | Lumbar |
| 3.3 | Spine | 3.3.4 | Sacral |
| | | 3.3.5 | Complete spine |
| | | 3.3.6 | Brachial plexus |
| | | 3.3.7 | Lumbosacral plexus |
| 3.4 | Thorax | 3.4.1 | Breast |

| | | 3.4.2 | Chest wall |
|-----|------------------|--------|---|
| | | 3.4.3 | Vascular MRA and MRV |
| | | 3.5.1 | Adrenal glands |
| | | 3.5.2 | Biliary imaging |
| | | 3.5.3 | Gastrointestinal tract |
| 2 5 | Abdominal | 3.5.4 | Kidneys |
| 5.5 | Abdominal | 3.5.5 | Liver |
| | | 3.5.6 | Pancreas |
| | | 3.5.7 | Spleen |
| | | 3.5.8 | Vascular MRA and MRV |
| | | 3.6.1 | Bladder |
| | | 3.6.2 | Cervix |
| | | 3.6.3 | Ovaries |
| 26 | Polyic | 3.6.4 | Prostate |
| 5.0 | PEIVIC | 3.6.5 | Rectum |
| | | 3.6.6 | Testes |
| | | 3.6.7 | Uterus |
| | | 3.6.8 | Vascular MRA and MRV |
| | | 3.7.1 | Cardiac |
| | | 3.7.2 | Diffusion tensor imaging (DTI) |
| | | 3.7.3 | Functional MRI (fMRI) |
| | | 3.7.4 | Interventional procedures |
| | | 3.7.5 | Kinematic MRI (kMRI) |
| 3.7 | Advanced Imaging | 3.7.6 | Lung imaging (hyperpolarized noble gases) |
| | | 3.7.7 | Molecular imaging (MMR) |
| | | 3.7.8 | MR guided focused ultrasound treatment (MRgFUS) |
| | | 3.7.9 | MR microscopy (MRM) |
| | | 3.7.10 | Perfusion imaging |
| | | 3.7.11 | Spectroscopy (MRS) |

Magnetic Resonance Imaging Appendix 4: Pharmaceuticals This Appendix lists the categories of pharmaceuticals referred to in competency E.1.4

| | Pharmaceutical Category |
|------|-----------------------------|
| 4.1 | Anesthetic |
| 4.2 | Antianxiety |
| 4.3 | Antihistamine |
| 4.4 | Antiperistaltic |
| 4.5 | Bronchodilator |
| 4.6 | Contrast agent |
| 4.7 | Organic nitrates |
| 4.8 | Osteoporosis drug treatment |
| 4.9 | Sedative |
| 4.10 | Vasodilator |

Appendix 4: Nuclear Medicine Technology Competency Profile

Nuclear Medicine Technology Competency Profile: <u>acmdtt.com/nmcp</u>*

Canadian Association of Medical Radiation Technologists

COMPETENCY PROFILE

NUCLEAR MEDICINE TECHNOLOGY

January 2014

Prepared by the Radiological Technology Competency Profile Task Group © CANADIAN ASSOCIATION OF MEDICAL RADIATION TECHNOLOGISTS Suite 1300, 180 Elgin St. Ottawa, Ontario K2P 2K3

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Entry-Level Competency Profiles for Medical Radiation Technologists

NUCLEAR MEDICINE TECHNOLOGY

Principles and Definitions

The competency profiles describe the practice requirements of Medical Radiation Technologists (MRTs) at entry-level¹, in order to provide safe, effective and ethical patient care in a variety of work environments. The profiles will be of value to users both within and outside the profession, however their primary uses are to:

- develop a blueprint for the CAMRT Certification Examinations
- > provide a guide for the curriculum of accredited education programs

The competency profile for each of the four MRT disciplines is distinct, although there is a common framework and some common content.

Each competency profile consists of a listing of competencies, defined as follows:

> A competency is a practice task that can be performed with entry-level proficiency.

Entry-level proficiency is characterized as follows:

- When presented with routine situations, the entry-level MRT performs relevant competencies in a manner consistent with generally accepted standards in the profession, independently, and within a reasonable timeframe. The entry-level MRT anticipates what outcomes to expect in a given situation, and responds appropriately, selecting and performing competencies in an informed manner.
- The entry-level MRT recognizes unusual, difficult to resolve and complex situations which may be beyond her / his capacity. The entry-level MRT takes appropriate steps to address these situations, which may include consulting with others, seeking supervision or mentorship, reviewing literature or documentation, or referring the situation to a more experienced MRT.

The competency profile for each discipline establishes a minimum standard for entry to the profession, and a foundation upon which to build:

Attainment at entry-to-practice of additional competencies, and higher levels of proficiency, is encouraged.

¹ Entry-level means initial entry into the profession.

Structural Framework

The format of the competency profiles is based upon modules, with each module representing a general area of practice. Within each module, related competencies and sub-competencies are clustered together in sections.

In situations where a given competency applies to a series of similar items (such as a list of equipment, a list of procedures, or a list of pathologies) appendices are used to avoid repetition.

The content of the modules and appendices for each discipline is shown below. The format for all four profiles is similar and the names of modules are similar. The competencies and sub-competencies in modules A and B are the same across the four disciplines, and wherever possible in the other modules similar competencies and sub-competencies are stated.

| Magnetic Resonance | Nuclear Medicine Technology | Radiation Therapy | Radiological Technology |
|---|--|---|--|
| Module A | Module A | Module A | Module A |
| Professional Practice | Professional Practice | Professional Practice | Professional Practice |
| Legal and Ethical | Legal and Ethical | Legal and Ethical | Legal and Ethical |
| Requirements | Requirements | Requirements | Requirements |
| Professional behaviour | Professional behaviour | Professional Behaviour | Professional behaviour |
| Communication | Communication | Communication | Communication |
| Decision making | Decision making | Decision making | Decision making |
| Inter-professional practice | Inter-professional practice | Inter-professional practice | Inter-professional practice |
| Use of resources | Use of resources | Use of resources | Use of resources |
| Quality Assurance | Quality Assurance | Quality Assurance | Quality Assurance |
| Research | Research | Research | Research |
| | | | |
| Module B | Module B | Module B | Module B |
| | | | |
| Patient Management | Patient Management | Patient Management | Patient Management |
| Patient Management Patient interactions | Patient Management Patient interactions | Patient Management Patient interactions | Patient Management Patient interactions |
| Patient Management Patient interactions Patient safety | Patient Management Patient interactions Patient safety | Patient Management Patient interactions Patient safety | Patient Management Patient interactions Patient safety |
| Patient Management Patient interactions Patient safety Patient assessment & care | Patient Management Patient interactions Patient safety Patient assessment & care | Patient Management Patient interactions Patient safety Patient assessment & care | Patient Management Patient interactions Patient safety Patient assessment & care |
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| Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety |
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| Module D | Module D | Module D | Module D |
|-------------------------------|---------------------------|---------------------------|----------------------------|
| Operation of Equipment | Operations of Equipment | Operation of Equipment | Operation of Equipment |
| Principles of MR | Physics & instrumentation | Principles of radiation | Principles of radiological |
| equipment | | therapy | equipment |
| Equipment quality control | Equipment operation | Equipment operation | Image acquisition & |
| | | | management |
| Image acquisition | Equipment quality control | Equipment quality control | Equipment quality control |
| Image quality | Image & data quality | | Image quality |
| Other imaging modalities | Other imaging modalities | | Other imaging modalities |
| | | | |
| Module E | Module E | Module E | Module E |
| Procedure Management | Procedure Management | Procedure Management | Procedure Management |
| Clinical principles | Radiopharmacy & | Simulation | Clinical principles |
| | Laboratory procedures | | |
| Imaging procedures | Clinical procedures | Accessory devices | Imaging procedures |
| Pharmaceutical | Diagnostic Procedures | Dosimetry | Pharmaceutical |
| administration | | | administration |
| | Therapeutic procedures | Treatment | |
| | Pharmaceutical | Clinical principles | |
| | Administration | | |
| | ECG Procedures (12 lead) | Treatment delivery | |
| | | Patient care | |
| | | | |
| Appendix 1 | Appendix 1 | Appendix 1 | Appendix 1 |
| Patient interactions | Patient interactions | Patient interactions | Patient interactions |
| Appendix 2 | Appendix 2 | Appendix 2 | Appendix 2 |
| Common pathologies & | Equipment | Malignant tumours | Imaging systems |
| anomalies | | | |
| Appendix 3 | Appendix 3 | Appendix 3 | Appendix 3 |
| Imaging procedures | Body systems & | Non-malignant & benign | Pathologies |
| | pathologies | conditions | |
| Appendix 4 | Appendix 4 | Appendix 4 | Appendix 4 |
| Pharmaceuticals | Pharmacologic & dietary | Clinical oncology | Imaging procedures |
| | agents | | |
| | Appendix 5 | | Appendix 5 |
| | Procedures | | Accessory equipment |

Relationship between the Competency Profiles and the CAMRT Certification Examinations

All competencies must be achieved and assessed in either an academic, simulated or clinical environment at an accredited education program. An Assessment Environment (AE) is indicated with each competency in the profile as a guide for the programs. It is realized based on many variable factors that an assessment environment may change or vary from program to program and discipline to discipline. With those competencies that refer to lists provided in the appendices, it is also realized that the same AE may not apply to everything listed based on exam frequency, and regional/facility differences. To assist surveyors during the accreditation process documentation to address a change from the guidelines should be provided.

It is the responsibility of the education program to ensure, through assessment of competencies, the graduate technologist is competent to practice safely and effectively at an entry to practice level in the current healthcare environment.

The CAMRT certification examinations are delivered in a multiple-choice format, and are intended to assess cognitive and affective learning related to performance of the competencies. The certification exam does not test all competencies listed in the competency profile. The list of competencies tested and the weighting applied to the competencies for testing purposes is described in the exam blueprint.

In provinces that regulate the practice of MRTs, regulatory authorities (with the exception of Quebec) require CAMRT Certification for registration purposes. However, since the certification examinations are national in scope, they do not test provincially-unique requirements.

Development and Updating of the Competency Profiles

Re-validation of the competency profiles, takes place approximately every five years. This involves an initial critical review by an expert committee, followed by consultation with regulators, education programs, practitioners and service department heads / managers.

Due to rapid changes in technology and practice certain portions of the profile may be validated more frequently to ensure that the profiles accurately reflect workplace needs.

Updated profiles are subject to approval by the CAMRT Board of Directors.

Additional Notes

In order to fully understand and utilize the competency profiles, it is important to be aware of the following principles:

- 1. The competencies in each profile are interdependent, each competency informing and qualifying other competencies. Competencies are not intended to be applied in isolation.
- 2. The competencies should be considered as an array of abilities which the MRT brings to the workplace. The MRT performs appropriate competencies in a manner consistent with the situation at hand, while complying with organizational directives. The competencies are not intended to be applied in the sequence listed, nor should they be considered a protocol.
- 3. Performance of a competency requires the application of learning which may involve the cognitive domain (knowledge and thinking skills), the affective domain (attitudes and values) and the psychomotor domain (manual skills).
- 4. The competency profiles define the key learning outcomes that should be the product of accredited education programs. They do not constitute a complete educational curriculum nor do they define a learning process; these should be developed by appropriately qualified program personnel.
- 5. The profile is intended to set a meaningful national standard for each discipline without being overly prescriptive. It provides a guide for curriculum development. Curriculum should incorporate the expectations stated in the definition of entry-level proficiency.

| Module | e A Professional Practice | AE | | | |
|--------|---|----------|--|--|--|
| A.1 | Legal and Ethical Requirements | | | | |
| A.1.1 | Practice within provincial scope of practice | С | | | |
| A 1 D | Comply with federal and provincial legislation and regulations affecting the practice of medical | С | | | |
| A.1.2 | radiation technology | | | | |
| A 1 2 | Comply with requirements of provincial regulatory body, including applicable Standards of Practice | Α | | | |
| A.1.5 | and sexual abuse prevention guidelines | | | | |
| A.1.4 | Practice within provincial regulatory or national association code of ethics, as relevant | С | | | |
| A.1.5 | Practice in a manner that recognizes patient's legal rights | С | | | |
| A.2 | Professional Behaviour | | | | |
| A.2.1 | Present a professional appearance and manner | С | | | |
| A.2.2 | Interact respectfully with others | С | | | |
| A.2.3 | Provide care in an unbiased manner | С | | | |
| A.2.4 | Practice within limits of personal knowledge and skills | С | | | |
| A.2.5 | Comply with organizational policies and directives | С | | | |
| A.2.6 | Maintain thorough and complete workplace documentation | С | | | |
| A.2.7 | Respond professionally to changes impacting the practice environment | А | | | |
| A.2.8 | Utilize techniques to manage personal stress in the workplace | С | | | |
| A.2.9 | Utilize basic conflict management techniques | S | | | |
| A.2.10 | Respond professionally to feedback received from others | С | | | |
| A.2.11 | Provide constructive feedback to others | S | | | |
| A.2.12 | Provide information and guidance to students in the medical radiation technology workplace | Α | | | |
| A.2.13 | Engage in reflective practice | С | | | |
| A.2.14 | Implement a learning plan to enhance personal knowledge and skills | С | | | |
| A 2 15 | Demonstrate basic knowledge of current and emerging issues in health care relevant to the practice | Α | | | |
| 7.2.15 | of medical radiation technology | | | | |
| A 2 16 | Demonstrate basic knowledge of current and emerging practices and technological developments in | А | | | |
| 72.10 | the field of medical radiation technology | | | | |
| A.3 | Communication | | | | |
| A.3.1 | Use effective written communication skills | A | | | |
| A.3.2 | Use effective oral communication skills | C | | | |
| A.3.3 | Use effective interpersonal skills | C | | | |
| A.3.4 | Utilize medical terminology in professional communication | C | | | |
| A.3.5 | Explain complex and technical matters related to medical radiation technology to the level of the | C | | | |
| | respondent's understanding | <u> </u> | | | |
| A.4 | Decision Making | | | | |
| A.4.1 | Appraise decision options based on best practice evidence, clinical information, resource implications and other contextual factors | C | | | |
| A.4.2 | Use professional judgement to reach decisions | С | | | |
| A.4.3 | Take responsibility for decisions and actions | С | | | |
| A.5 | Interprofessional Practice | | | | |
| | Recognize the roles of health care professionals commonly encountered in the medical radiation | Α | | | |
| A.5.1 | technology workplace | | | | |
| A.5.2 | Contribute productively to teamwork and collaborative processes | C | | | |
| A.5.3 | Contribute knowledge of medical radiation technology in collaborative practice | С | | | |

| A.6 | Use of Resources | |
|-------|--|---|
| A.6.1 | Prioritize workflow to optimize patient care | С |
| A.6.2 | Prioritize workflow to optimize use of resources | С |
| A.6.3 | Monitor inventory of materials and supplies, and respond | С |
| A.7 | Quality Assurance | |
| A 7 1 | Maintain awareness of factors in the clinical environment that may affect delivery of care, and take | С |
| A.7.1 | appropriate action | |
| A.7.2 | Participate in activities that support a quality assurance program | Α |
| A.7.3 | Apply principles of risk management | Α |
| A.8 | Research | |
| A.8.1 | Demonstrate basic knowledge of research methodology and ethics | Α |
| A.8.2 | Critically appraise professional literature to assess relevance to practice | Α |
| A.8.3 | Participate in activities that require application of research methodology | Α |

| Module | B Patient Management | AE |
|--------|---|-----|
| B.1 | Patient Interactions | |
| B.1.1 | Respect the dignity, privacy and autonomy of the patient | C |
| B.1.2 | Maintain professional boundaries | C |
| B.1.3 | Recognize and respond appropriately to cultural, religious and socio-economic variables affecting | S |
| | patient management | |
| B.1.4 | Adapt interactions to enhance communication with the patient and support persons | C |
| B.1.5 | Provide complete information about procedures to patient and support persons and verify | С |
| | understanding | |
| B.1.6 | Respond to questions from patient and/or support persons or direct them to appropriate personnel | C |
| B.1.7 | Ensure ongoing informed consent to procedures | С |
| B.2 | Patient Safety | |
| B.2.1 | Ensure a safe physical environment | C |
| B.2.2 | Verify patient identity | C |
| B.2.3 | Verify accuracy and completeness of pre-procedure documentation | C |
| B.2.4 | Transport patient safely | C |
| B.2.5 | Transfer patient safely | C |
| B.2.6 | Utilize immobilization devices | C |
| B.2.7 | Ensure proper function of patient's supportive devices and equipment | C |
| B.2.8 | Assess and respond to any changes in patient condition | C |
| B.2.9 | Recognize medical emergencies, and respond | S |
| B.2.10 | Ensure post-procedure transfer of care | C |
| B.2.11 | Verify accuracy and completeness of post-procedure documentation | C |
| B.2.12 | Ensure entry of information to data archiving system | С |
| B.3 | Patient Assessment and Care | |
| B.3.1 | Enhance patient comfort | С |
| B.3.2 | Review clinical history provided relative to requested procedure and address discrepancies | C |
| B.3.3 | Obtain information from patient or support person | С |
| B.3.4 | Identify clinical relevant details and respond | C |
| B.3.5 | Determine patient's pregnancy status and respond | C |
| B.3.6 | Assess patient for contraindications to procedure and respond | С |
| B.3.7 | Perform venipuncture | C |
| B.3.8 | Assist with administration of pharmaceuticals | C |
| B.3.9 | Adapt procedures based upon patient's physical and cognitive condition | C |
| B.3.10 | Provide care for patient's physiological needs | C |
| B.3.11 | Provide patient interventions as listed in Appendix 1 | C/S |
| B.3.12 | Advise patient of necessary post-procedure follow-up | C/S |

| Module | e C Health and Safety | AE |
|--------|---|----|
| C.1 | Infection Control and Materials Handling | |
| C.1.1 | Employ routine practices for infection control | С |
| C.1.2 | Employ transmission-based precautions | С |
| C.1.3 | Follow standardized procedure for patients with compromised immunity | А |
| C.1.4 | Use aseptic technique | С |
| C.1.5 | Use sterile technique | S |
| C.1.6 | Follow standardized procedures for handling and disposing of sharps, and contaminated and | С |
| | biohazardous materials | |
| C.2 | Self-Protection | |
| C.2.1 | Utilize protective equipment | C |
| C.2.2 | Employ proper body mechanics | C |
| C.2.3 | Ensure a safe working environment | С |
| C.3 | Radiation Safety Practices | |
| C.3.1 | Apply ALARA principle | С |
| C.3.2. | Apply knowledge of radiation effects and risks | C |
| C.3.3 | Use protective devices and apparel for personnel | C |
| C.3.4 | Implement safe practices to minimize radiation dose to personnel and support persons | С |
| C.3.5 | Implement safe practices to minimize radiation dose to patients | С |
| C.3.6 | Monitor personal radiation exposure and respond | С |
| C.3.7 | Perform thyroid screening | С |
| C.3.8 | Receive nuclear substances | С |
| C.3.9 | Prepare nuclear substances for transportation | S |
| C.3.10 | Store nuclear substances | С |
| C.3.22 | Dispose of nuclear substances | С |
| C.3.12 | Perform and assess wipe tests | С |
| C.3.13 | Perform and assess area monitoring | С |
| C.3.14 | Perform leak testing for sealed sources | С |
| C.3.15 | Perform area commissioning | S |
| C.3.16 | Perform area decommissioning | S |
| C.3.17 | Implement procedure for radioactive spill | S |
| C.4 | Radiation Safety Education | |
| C.4.1 | Provide information regarding radiation risk and safe practices | C |
| C.4.2 | Provide education regarding organ sensitivities and safe practices | C |
| C.5 | Emergency Procedures | |
| C.5.1 | Recognize emergency situations involving equipment listed in Appendices 2 & 5 and respond | A |

| Modul | e D Operation of Equipment | AE |
|-------|--|-------|
| D.1 | Physics and Instrumentation | |
| D.1.1 | Apply knowledge of radiation physics | Α |
| D.1.2 | Apply knowledge of operational components of imaging systems listed in Appendix 2 | Α |
| D.1.4 | Apply knowledge of computer technology | Α |
| D.2 | Equipment Operation | |
| D.2.1 | Operate imaging systems listed in Appendix 2 | С |
| D.2.2 | Select parameters to optimize images and data | С |
| D.2.3 | Acquire images and data | С |
| D.2.4 | Use departmental ancillary equipment | S |
| D.3 | Equipment Quality Control** | |
| D.3.1 | Perform specified quality control procedures for equipment listed in Appendix 2 | C/S/A |
| D.3.2 | Evaluate equipment performance for quality control procedures listed in Appendix 2 and respond | C/S/A |
| D.3.3 | Assess performance of departmental ancillary equipment and respond | S |
| D.3.4 | Assess integrity of protective apparel and devices and respond | S |
| D.4 | Image and Data Quality | |
| D.4.1 | Evaluate diagnostic quality of image and data and respond | С |
| D.4.2 | Evaluate technical quality of image and data and respond | С |
| D.4.3 | Evaluate image artefacts and respond | С |
| D.4.4 | Verify accuracy of patient information on acquired data | С |
| D.4.5 | Verify visibility and accuracy of markers and annotation | С |
| D.4.6 | Perform post-acquisition processing | С |
| D.4.7 | Utilize digital networking and archiving system | C |
| D.5 | Other Imaging Modalities | |
| D.5.1 | Apply knowledge of basic principles of magnetic resonance imaging | Α |
| D.5.2 | Apply knowledge of basic principles of diagnostic ultrasound | Α |

Note ** It is recognized that assessment environments for Quality Control procedures will vary.

| Module E Procedure Management | | |
|-------------------------------|---|-------|
| E.1 | Radiopharmacy and Laboratory Procedures* | |
| | *Note: In the event that it is necessary to simulate competencies in section E.1 which have an assessment environment of C, this must involve working with radiopharmaceuticals at clinical concentrations. | |
| E.1.1 | Ensure correct storage of radiopharmaceuticals, non-radioactive supplies and kits. | С |
| E.1.2 | Perform generator set up. | С |
| E.1.3 | Perform generator elution. | С |
| E.1.4 | Perform eluate quality control, and respond. | С |
| E.1.5 | Calculate predicted generator yield. | С |
| E.1.6 | Prepare radiopharmaceuticals. | С |
| E.1.7 | Schedule generator elutions to meet kit requirements and department needs. | С |
| E.1.8 | Prepare radiopharmaceuticals in accordance with work schedule requirements. | С |
| E.1.9 | Radiolabel autologous red blood cells for re-injection. | С |
| E.1.10 | Radiolabel autologous leukocytes for re-injection. | S |
| E.1.11 | Perform radiopharmaceutical quality control, and respond. | С |
| E.1.12 | Determine acceptability of particulate radiopharmaceutical preparations for clinical use, and respond. | С |
| E.1.13 | Assess sterility results. | S |
| E.1.14 | Assess apyrogenicity results. | Α |
| E.1.15 | Dispense radiopharmaceuticals safely and accurately. | С |
| E.1.16 | Verify dispensed dosage of radioactivity. | С |
| E.1.17 | Prepare standard / stock solutions. | S |
| E.1.18 | Maintain acceptable levels of reagents and other supplies. | С |
| E.2 | Clinical Procedures** | |
| E.2.1 | Apply knowledge of anatomy, relational anatomy and physiology of the body systems listed in Appendix 3, as they relate to clinical procedures listed in Appendix 5. | C/S/A |
| E.2.2 | Apply knowledge of pathologies and anomalies listed in Appendix 3, as they relate to the procedures listed in Appendix 5. | А |
| E.2.3 | Apply knowledge of the effects of pharmacologic and dietary agents listed in Appendix 4 as they relate to clinical procedures listed in Appendix 5. | А |
| E.3 | Diagnostic Procedures as listed in Appendix 5** | |
| E.3.1 | Plan procedure to optimize patient outcome. | C/S/A |
| E.3.2 | Perform technical preparation. | C/S/A |
| E.3.3 | Perform patient preparation. | C/S/A |
| E.3.4 | Administer, or assist with administration of, required radiopharmaceutical or radiation dose in accordance with protocol. | C/S/A |
| E.3.5 | Position patient using anatomical landmarks and knowledge of relational anatomy, to best demonstrate anatomical structures / pathologies. | C/S/A |
| E.3.6 | Perform diagnostic procedure. | C/S/A |
| E.3.7 | Distinguish patterns consistent with normal results, and normal variants. | C/S/A |

| E.3.8 | Recognize patterns consistent with common pathologies, and abnormal results. | C/S/A |
|-------|--|-------|
| E.3.9 | Evaluate results to determine if further images and data are required. | C/S/A |
| E.4 | Therapeutic Procedures as listed in Appendix 5** | C/S/A |
| E.4.1 | Plan procedure to optimize patient outcome. | C/S/A |
| E.4.2 | Perform technical preparation. | C/S/A |
| E.4.3 | Perform patient preparation. | C/S/A |
| E.4.4 | Confirm patient understanding of post-therapy instructions. | C/S/A |
| E.4.5 | Perform therapeutic procedure. | C/S/A |
| E.5 | Pharmaceutical Administration | |
| E.5.1 | Assess for contraindications to contrast media, and respond. | С |
| E.5.2 | Prepare contrast media. | С |
| E.5.3 | Prepare patient and administer contrast media. | С |
| E.5.4 | Apply knowledge of pharmaceutical preparation, administration and contraindications. | Α |
| E.5.5 | Assist with administration of pharmaceuticals. | С |
| E.5.6 | Administer pharmaceuticals. | S |
| E.6 | ECG Procedures (12-lead) | |
| E.6.1 | Plan procedure to optimize patient outcome. | С |
| E.6.2 | Place electrodes using anatomical landmarks. | С |
| E.6.3 | Perform procedure in accordance with protocol. | С |
| E.6.4 | Distinguish patterns consistent with normal results, and normal variants. | С |
| E.6.5 | Distinguish patterns consistent with common pathologies, and abnormal results. | С |
| F.6.6 | Evaluate results to determine if further action is required. | С |

Note **

It is realized not all procedures listed in Appendix 5 can be assessed in a clinical environment. Frequency of the exam and regional / facility protocols will impact the assessment environment. Howeve,r every attempt must be made to utilize the clinical environment for assessment purposes.

Nuclear Medicine Appendix 1: Patient Interventions

This Appendix lists the patient interventions referred to in competency B.3.11

| | Intervention |
|------|---------------------------------------|
| 1.1 | Assist with administration of oxygen. |
| 1.2 | Assist with suctioning. |
| 1.3 | Administer bedpans and urinals. |
| 1.4 | Monitor vital signs. |
| 1.5 | Perform CPR. |
| 1.6 | Insert IV lines. |
| 1.7 | Insert saline locks. |
| 1.8 | Obtain blood samples. |
| 1.9 | Obtain biological samples. |
| 1.10 | Determine blood glucose level. |

Nuclear Medicine Appendix 2: Equipment

| Equipment (with reference to competencies D.1.2, D.2.1) | | Related QC | Quality Control Procedures (with reference to competencies D.3.1, D.3.2) | |
|---|---------------------------|---------------|--|--------------------------------------|
| | Scintillation | | 2.1.1 | Constancy |
| | detectors (well | → | 2.1.2 | Efficiency (sensitivity) |
| 2.1 | detector & | | 2.1.3 | Energy resolution |
| | uptake probe) | | 2.1.4 | Energy calibration |
| | | | 2.1.5 | Reproducibility (chi square test) |
| | | | 2.2.1 | Center of rotation |
| | | → | 2.2.2 | Energy resolution |
| 22 | Gamma cameras | | 2.2.3 | Linearity |
| 2.2 | Guinna cameras | | 2.2.4 | Photopeak determination |
| | | | 2.2.5 | Spatial resolution (planar & SPECT) |
| | | | 2.2.6 | Uniformity (planar & SPECT) |
| | | | 2.3.1 | Accuracy |
| 23 | Dose calibrators | → | 2.3.2 | Linearity |
| 2.5 | Dose calibrators | | 2.3.3 | Constancy |
| | | | 2.3.4 | Geometry |
| | | → | 2.4.1 | Accuracy / calibration |
| 2.4 | Survey meters | | 2.4.2 | Battery check |
| | | | 2.4.3 | Constancy |
| | PET | | 2.5.1 | Blank scan |
| | | | 2.5.2 | Coincidence timing |
| 25 | | → | 2.5.3 | Detector stability |
| 2.5 | | | 2.5.4 | Normalization |
| | | | 2.5.5 | Uniformity |
| | | | 2.5.6 | PET/CT offset calibration |
| | | | 2.6.1 | Beam filtration |
| | | | 2.6.2 | Contrast resolution |
| | | | 2.6.3 | CT number accuracy |
| | | | 2.6.4 | CT uniformity |
| | | | 2.6.5 | CTDI assessment |
| | | | 2.6.6 | Detector response (kV / mA settings) |
| | | | 2.6.7 | Image noise |
| 2.0 | CT | _ | 2.6.8 | Image slice thickness |
| 2.6 | CI scanner | 7 | 2.6.9 | Laser alignment |
| | | | 2.6.10 | Linearity of CT numbers |
| | | | 2.6.11 | Safety light / door check |
| | | | 2.6.12 | Spatial resolution |
| | | | 2.6.15 | Tube warm up (including tube current |
| | | - | 2.6.13 | verification) |
| | | | 2.6.14 | X-Ray tube shielding (leakage) |
| | | | 2.6.15 | Fastcal |
| 2.7 | Bone mineral densitometer | → | 2.7.1 | Accuracy |
| 2.7 | | | 2.7.2 | Precision |

Nuclear Medicine Appendix 3: Body Systems and Pathologies

| | Body System | | Pathology |
|-----|---------------------------------|--------|--------------------------|
| | | 3.1.1 | Cardiomyopathy |
| | | 3.1.2 | Conduction disorders |
| | | 3.1.3 | Congenital anomalies |
| | | 3.1.4 | Congestive heart disease |
| 2.4 | | 3.1.5 | Hematopoietic disorders |
| 3.1 | Cardiovascular (CV) | 3.1.6 | Infection |
| | | 3.1.7 | Inflammation |
| | | 3.1.8 | Shunts |
| | | 3.1.9 | Valvular disease |
| | | 3.1.10 | Vascular diseases |
| | | 3.2.1 | Anemia |
| | | 3.2.2 | Congenitial disease |
| | | 3.2.3 | Infection |
| | | 3.2.4 | Inflammation |
| 3.2 | Gastrointestinal (GI) | 3.2.5 | Metabolic disorders |
| | | 3.2.6 | Motility disorders |
| | | 3.2.7 | Neoplasms |
| | | 3.2.8 | Trauma |
| | | 3.2.9 | Vascular disease |
| | | 3.3.1 | Congenital anomalies |
| | | 3.3.2 | Cystic disease |
| | | 3.3.3 | Infection |
| | | 3.3.4 | Inflammation |
| 2.2 | Conitouring | 3.3.5 | Neoplasms |
| 5.5 | Genitourinary | 3.3.6 | Obstructive disorders |
| | | 3.3.7 | Reflux disorders |
| | | 3.3.8 | Transplants |
| | | 3.3.9 | Trauma |
| | | 3.3.10 | Vascular disease |
| | | 3.4.1 | Degenerative diseases |
| | | 3.4.2 | Hemopoietic disorders |
| | | 3.4.3 | Infection |
| 2.4 | Skalatal (SK) | 3.4.4 | Inflammation |
| 3.4 | Skeletal (SK) | 3.4.5 | Metabolic disease |
| | | 3.4.6 | Neoplasms |
| | | 3.4.7 | Trauma |
| | | 3.4.8 | Vascular disease |
| | | 3.5.1 | Hematopoietic disorders |
| 2 5 | Inflammatory process / tumour / | 3.5.2 | Infection |
| 3.5 | lymph (TU) | 3.5.3 | Inflammation |
| | | 3.5.4 | Neoplasms |

This Appendix lists the body systems and pathologies referred to in competencies E.2.1. and E.2.2

| | | 3.5.5 | Trauma |
|-----|----------------------|-------|--------------------------|
| | | 3.5.6 | Vascular disease |
| | | 3.6.1 | Degenerative diseases |
| | | 3.6.2 | Infection |
| | | 3.6.3 | Inflammation |
| 3.6 | Central nervous (CN) | 3.6.4 | Neoplasms |
| | | 3.6.5 | Neurological disorders |
| | | 3.6.6 | Trauma |
| | | 3.6.7 | Vascular diseases |
| | Endocrine (EN) | 3.7.1 | Cystic disease |
| | | 3.7.2 | Hyperplasia |
| 3.7 | | 3.7.3 | Inflammation |
| | | 3.7.4 | Metabolic disorders |
| | | 3.7.5 | Neoplasms |
| | Respiratory (RE) | 3.8.1 | Congenital anomalies |
| | | 3.8.2 | Hypertension |
| | | 3.8.3 | Infection |
| 20 | | 3.8.4 | Inflammation |
| 3.8 | | 3.8.5 | Neoplasms |
| | | 3.8.6 | Obstructive lung disease |
| | | 3.8.7 | Trauma |
| | | 3.8.8 | Vascular disease |

Nuclear Medicine Appendix 4: Pharmacologic and Dietary Agents

Body System Pharmacologic Classifications Specific Agents 4.1.1 Antiarrhythmics 4.1.2 Anticoagulants 4.1.3 Antihypertensives 4.1.4 Chemotherapy agents 4.1.5 Diuretics 4.1.6 Electrolytes 4.1.7 Nitrates 4.1.8 Xanthines 4.1 Cardiovascular (CV) 4.1.9 Adenosine 4.1.10 Aminophylline 4.1.11 Atropine 4.1.12 **Dietary** fats 4.1.13 Dipyridamole 4.1.14 Dobutamine 4.1.15 Glucose 4.1.16 Insulin Metformin 4.1.17 4.2.1 Antacids 4.2.2 Laxatives 4.2.3 Motility medications 4.2.4 Barium contrast media 4.2.5 **Dietary fats** 4.2 Gastrointestinal (GI) 4.2.6 Insulin 4.2.7 Morphine 4.2.8 Phenobarbital 4.2.9 Potassium perchlorate 4.2.10 Sincalide 4.3.1 ACE inhibitors 4.3.2 Antihypertensives 4.3.3 Diuretics 4.3 Genitourinary (GU) 4.3.4 Electrolytes 4.3.5 Fluids 4.4.1 Bisphosphonates Chemotherapy agents 4.4.2 Selective estrogen receptor 4.4.3 modulators 4.4 Skeletal (SK) 4.4.4 Calcitonin 4.4.5 Calcium 4.4.6 Estrogen 4.4.7 Parathyroid hormone

This Appendix lists the categories of pharmaceuticals referred to in competency E2.3

| | | 4.5.1 | Antibiotics | |
|-----|-----------------------|-------|---------------------------------|-------------------------|
| | Inflammatory | 4.5.2 | Chemotherapy agents | |
| | | 4.5.3 | Steroids | |
| | | 4.5.4 | | Contrast media |
| | | 4.5.5 | | D.5W |
| 4.5 | process / tumour / | 4.5.6 | | Glucose |
| | iymph (10) | 4.5.7 | | Insulin |
| | | 4 - 0 | | Lidocaine / xylocaine / |
| | | 4.5.8 | | topical anesthetic |
| | | 4.5.9 | | Metformin |
| | | 4.6.1 | Anti-anxiety drugs | |
| | | 4.6.2 | Anticonvulsants | |
| 16 | Control normous (CNI) | 4.6.3 | Antihypertensives | |
| 4.0 | Central nervous (CN) | 4.6.4 | Carbonic Anhydrase Inhibitors | |
| | | 4.6.5 | Sedatives | |
| | | 4.6.6 | Vasodilators | |
| | Endocrine (EN) | 4.7.1 | Thyroid blocking agents | |
| | | 170 | Thyroid hormone replacement | |
| | | 4.7.2 | medications | |
| 47 | | 4.7.3 | Thyroid stimulating agents | |
| 4.7 | | 4.7.4 | Thyroid suppression medications | |
| | | 4.7.5 | | Amiodarone |
| | | 4.7.6 | | Iodinated compounds |
| | | 4.7.7 | | Lithium |
| | | 4.8.1 | Anticoagulants | |
| | | 4.8.2 | Antihistamines | |
| | | 4.8.3 | Bronchodilators | |
| 10 | Pespiratony (PE) | 4.8.4 | Birth control and hormone | |
| 4.0 | Respiratory (RE) | | replacement therapy agents | |
| | | 4.8.5 | | Nicotine |
| | | 4.8.6 | | Oxygen |
| | | | | |

Nuclear Medicine Appendix 5: Diagnostic Procedures

This Appendix lists the procedures referred to in competency E.2.1 and in the competencies in sections E.2.2 and E.2.3, and E.4

| | Routine Procedures for | these pro | ocedures the radiopharmaceutical is administered by the |
|-----|------------------------|-----------|---|
| | technologist | | |
| | | 5.1.1 | Gated equilibrium SPECT |
| | | 5.1.2 | Gated equilibrium stress |
| | | 5.1.3 | Gated equilibrium rest |
| F 1 | Cardiovaceular | 5.1.4 | Myocardial perfusion gated SPECT (rest and stress) |
| 5.1 | Carulovascular | 5.1.5 | Myocardial perfusion non-gated SPECT (rest and stress) |
| | | E 1 6 | Myocardial perfusion pharmacological stress SPECT |
| | | 5.1.0 | (rest and pharmacological stress) |
| | | 5.1.7 | Myocardial perfusion SPECT (rest only) |
| | | 5.2.1 | Gastric emptying (solid) |
| | | 5.2.2 | Gastrointestinal bleed |
| | | 5.2.3 | Hepatobiliary scan |
| 5.2 | Gastrointestinal | 5.2.4 | Hepatobiliary scan with intervention |
| | | 5.2.5 | Liver spleen scan (colloid) |
| | | 5.2.6 | Meckel's diverticulum |
| | | 5.2.7 | RBC liver scan |
| | | 5.3.1 | Effective renal plasma flow |
| | Genitourinary | 5.3.2 | Glomerular filtration rate (blood GFR) |
| F 2 | | 5.3.3 | Renal cortical scan |
| 5.3 | | 5.3.4 | Renal function scan |
| | | 5.3.5 | Renal scan pharmacological intervention |
| | | 5.3.6 | Renal transplant |
| | | | Bone marrow imaging |
| | Skeletal | 5.4.2 | Bone scan SPECT |
| 5.4 | | 5.4.3 | Three phase bone scan |
| | | 5.4.4 | Whole body bone scan |
| | | 5.5.1 | 131-lodine WB imaging |
| | Inflammate we wanted | 5.5.2 | Gallium scan |
| 5.5 | Inflammatory process | 5.5.3 | mIBG imaging |
| | / tumour / lymph | 5.5.4 | Somatostatin-receptor imaging |
| | | 5.5.5 | White blood cell scan |
| 5.6 | Central nervous | 5.6.1 | Cerebral perfusion study |
| | | 5.7.1 | Thyroid scan |
| 5.7 | Endocrine | 5.7.2 | Thyroid uptake |
| | | | Parathyroid scan |
| | | 5.8.1 | Perfusion lung scan |
| 5.8 | Respiratory | 5.8.2 | Quantitative lung scan |
| | . , | 5.8.3 | Ventilation lung scan |
| | | 5.9.1 | Cardiology |
| 5.9 | Positron emission | 5.9.2 | Neurology |
| | tomography (PET) | 5.9.3 | Oncology |

| | Special Procedures for these procedures the technologist assists with the administration of the radiopharmaceutical | | | |
|------|--|--------|--|--|
| 5.10 | Inflammatory process / tumour / lymph5.10.1Sentinel node imaging | | | |
| | Radiation Emitting Device Procedures for these procedures the technologist applies the radiation dose | | | |
| 5.11 | Skeletal | 5.11.1 | Bone mineral density | |
| | | 5.12.1 | Attenuation correction | |
| | | 5.12.2 | Abdomen and pelvis enhanced and unenhanced | |
| | СТ | 5.12.3 | Chest enhanced and unenhanced | |
| 5.12 | | 5.12.4 | Extremities | |
| | | 5.12.5 | Head enhanced and unenhanced | |
| | | 5.12.6 | Neck enhanced and unenhanced | |
| | | 5.12.7 | Spine | |
| | Therapeutic Procedures for these procedures the radiopharmaceutical is administered by | | | |
| | the technologist | | | |
| E 12 | Endocrino | 5.13.1 | Thyroid ablation therapy | |
| 2.12 | | 5.13.2 | Thyroid therapy for hyperthyroidism | |

Appendix 5: Radiological Technology Competency Profile

Radiological Technology Competency Profile: <u>acmdtt.com/rcp</u>*

Canadian Association of Medical Radiation Technologists

COMPETENCY PROFILE

RADIOLOGICAL TECHNOLOGY

January 2014

Prepared by the Radiological Technology Competency Profile Task Group © CANADIAN ASSOCIATION OF MEDICAL RADIATION TECHNOLOGISTS Suite 1300, 180 Elgin St. Ottawa, Ontario K2P 2K3

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Entry-Level Competency Profiles for Medical Radiation Technologists

RADIOLOGICAL TECHNOLOGY

Principles and Definitions

The competency profiles describe the practice requirements of Medical Radiation Technologists (MRTs) at entry-level¹, in order to provide safe, effective and ethical patient care in a variety of work environments. The profiles will be of value to users both within and outside the profession, however their primary uses are to:

- > develop a blueprint for the CAMRT Certification Examinations
- > provide a guide for the curriculum of accredited education programs

The competency profile for each of the four MRT disciplines is distinct, although there is a common framework and some common content.

Each competency profile consists of a listing of competencies, defined as follows:

> A competency is a practice task that can be performed with entry-level proficiency.

Entry-level proficiency is characterized as follows:

- When presented with routine situations, the entry-level MRT performs relevant competencies in a manner consistent with generally accepted standards in the profession, independently, and within a reasonable timeframe. The entry-level MRT anticipates what outcomes to expect in a given situation, and responds appropriately, selecting and performing competencies in an informed manner.
- The entry-level MRT recognizes unusual, difficult to resolve and complex situations which may be beyond her / his capacity. The entry-level MRT takes appropriate steps to address these situations, which may include consulting with others, seeking supervision or mentorship, reviewing literature or documentation, or referring the situation to a more experienced MRT.

The competency profile for each discipline establishes a minimum standard for entry to the profession, and a foundation upon which to build:

Attainment at entry-to-practice of additional competencies, and higher levels of proficiency, is encouraged.

¹ Entry-level means initial entry into the profession.

Structural Framework

The format of the competency profiles is based upon modules, with each module representing a general area of practice. Within each module, related competencies and sub-competencies are clustered together in sections.

In situations where a given competency applies to a series of similar items (such as a list of equipment, a list of procedures, or a list of pathologies) appendices are used to avoid repetition.

The content of the modules and appendices for each discipline is shown below. The format for all four profiles is similar and the names of modules are similar. The competencies and sub-competencies in modules A and B are the same across the four disciplines, and wherever possible in the other modules similar competencies and sub-competencies are stated.

| Magnetic Resonance | Nuclear Medicine | Radiation Therapy | Radiological Technology |
|--|--|---|---|
| Module A | Module A | Module A | Module A |
| Professional Practice | Professional Practice | Professional Practice | Professional Practice |
| Legal and Ethical | Legal and Ethical | Legal and Ethical | Legal and Ethical |
| Requirements | Requirements | Requirements | Requirements |
| Professional behaviour | Professional behaviour | Professional Behaviour | Professional behaviour |
| Communication | Communication | Communication | Communication |
| Decision making | Decision making | Decision making | Decision making |
| Inter-professional practice | Inter-professional practice | Inter-professional practice | Inter-professional practice |
| Use of resources | Use of resources | Use of resources | Use of resources |
| Quality Assurance | Quality Assurance | Quality Assurance | Quality Assurance |
| Research | Research | Research | Research |
| | | | |
| Module B | Module B | Module B | Module B |
| | | | |
| Patient Management | Patient Management | Patient Management | Patient Management |
| Patient Management Patient interactions | Patient Management Patient interactions | Patient Management Patient interactions | Patient Management Patient interactions |
| Patient Management Patient interactions Patient safety | Patient Management Patient interactions Patient safety | Patient Management Patient interactions Patient safety | Patient Management Patient interactions Patient safety |
| Patient Management Patient interactions Patient safety Patient assessment & care | Patient Management Patient interactions Patient safety Patient assessment & care | Patient Management Patient interactions Patient safety Patient assessment & care | Patient ManagementPatient interactionsPatient safetyPatient assessment & care |
| Patient Management Patient interactions Patient safety Patient assessment & care | Patient Management Patient interactions Patient safety Patient assessment & care | Patient Management Patient interactions Patient safety Patient assessment & care | Patient Management Patient interactions Patient safety Patient assessment & care |
| Patient Management Patient interactions Patient safety Patient assessment & care Module C | Patient Management Patient interactions Patient safety Patient assessment & care Module C | Patient Management Patient interactions Patient safety Patient assessment & care Module C | Patient Management Patient interactions Patient safety Patient assessment & care Module C |
| Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety |
| Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & |
| Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& materials handling | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling |
| Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection |
| Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection MR Screening | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices |
| Patient ManagementPatient interactionsPatient safetyPatient assessment & careModule CHealth and SafetyInfection control& materials handlingSelf-protectionMR ScreeningMR Bioeffects | Patient ManagementPatient interactionsPatient safetyPatient assessment & careModule CHealth and SafetyInfection control & materials handlingSelf-protectionRadiation safety practicesRadiations safety | Patient ManagementPatient interactionsPatient safetyPatient assessment & careModule CHealth and SafetyInfection control and materials handlingSelf-protectionRadiation safety education | Patient ManagementPatient interactionsPatient safetyPatient assessment & careModule CHealth and SafetyInfection control & materials handlingSelf-protectionRadiation safety education |
| Patient ManagementPatient interactionsPatient safetyPatient assessment & careModule CHealth and SafetyInfection control& materials handlingSelf-protectionMR ScreeningMR Bioeffects | Patient ManagementPatient interactionsPatient safetyPatient assessment & careModule CHealth and SafetyInfection control & materials handlingSelf-protectionRadiation safety practicesRadiations safety education | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices Radiation safety education | Patient ManagementPatient interactionsPatient safetyPatient assessment & careModule CHealth and SafetyInfection control & materials handlingSelf-protectionRadiation safety education |
| Patient ManagementPatient interactionsPatient safetyPatient assessment & careModule CHealth and SafetyInfection control& materials handlingSelf-protectionMR ScreeningMR BioeffectsEmergency procedures | Patient ManagementPatient interactionsPatient safetyPatient assessment & careModule CHealth and SafetyInfection control & materials handlingSelf-protectionRadiation safety practicesRadiations safety educationEmergency procedures | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices Radiation safety education Emergency procedures | Patient Management Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiation safety education Emergency procedures |

| Module D | Module D | Module D | Module D |
|-------------------------------|---------------------------|---------------------------|----------------------------|
| Operation of Equipment | Operations of Equipment | Operation of Equipment | Operation of Equipment |
| Principles of MR | Physics & instrumentation | Principles of radiation | Principles of radiological |
| equipment | | therapy | equipment |
| Equipment quality control | Equipment operation | Equipment operation | Image acquisition & |
| | | | management |
| Image acquisition | Equipment quality control | Equipment quality control | Equipment quality control |
| Image quality | Image & data quality | | Image quality |
| Other imaging modalities | Other imaging modalities | | Other imaging modalities |
| | | | |
| Module E | Module E | Module E | Module E |
| Procedure Management | Procedure Management | Procedure Management | Procedure Management |
| Clinical principles | Radiopharmacy & | Simulation | Clinical principles |
| | Laboratory procedures | | |
| Imaging procedures | Clinical procedures | Accessory devices | Imaging procedures |
| Pharmaceutical | Diagnostic procedures | Dosimetry | Pharmaceutical |
| administration | | | administration |
| | Therapeutic Procedures | Treatment | |
| | Pharmaceutical | Clinical principles | |
| | Administration | | |
| | ECG Procedures (12-lead) | Treatment delivery | |
| | | Patient care | |
| | | | |
| Appendix 1 | Appendix 1 | Appendix 1 | Appendix 1 |
| Patient interactions | Patient interactions | Patient interactions | Patient interactions |
| Appendix 2 | Appendix 2 | Appendix 2 | Appendix 2 |
| Common pathologies & | Equipment | Malignant tumours | Imaging systems |
| anomalies | | | |
| Appendix 3 | Appendix 3 | Appendix 3 | Appendix 3 |
| Imaging procedures | Body systems & | Non-malignant & benign | Pathologies |
| | pathologies | conditions | |
| Appendix 4 | Appendix 4 | Appendix 4 | Appendix 4 |
| Pharmaceuticals | Pharmacologic & dietary | Clinical oncology | Imaging procedures |
| | agents | | |
| | Appendix 5 | | Appendix 5 |
| | Procedures | | Accessory equipment |

Relationship between the Competency Profiles and the CAMRT Certification Examinations

All competencies must be achieved and assessed in either an academic, simulated or clinical environment at an accredited education program. An Assessment Environment (AE) is indicated with each competency in the profile as a guide for programs. It is realized, based on many variable factors that an assessment environment may need to change over the term of the profile given changes in practice, or may vary from program to program.

With those competencies that refer to lists provided in the appendices, it is also realized that the same AE may not apply to everything listed based on exam frequency, and regional/facility differences. Note comments in the profile.

It is the responsibility of the education program to ensure, through assessment of competencies in the most appropriate environment that the graduate technologist is competent to practice safely and effectively at the entry to practice level in the current healthcare environment.

The CAMRT certification examinations are delivered in a multiple-choice format, and are intended to assess cognitive and affective learning related to performance of the competencies. The certification exam does not test all competencies listed in the competency profile. The list of competencies tested and the weighting applied to the competencies for testing purposes is described in the exam blueprint.

In provinces that regulate the practice of MRTs, regulatory authorities (with the exception of Quebec) require CAMRT Certification for registration purposes. However, since the certification examinations are national in scope, they do not test provincially-unique requirements.

Development and Updating of the Competency Profiles

Re-validation of the competency profiles, takes place approximately every five years. This involves an initial critical review by an expert committee, followed by consultation with regulators, education programs, practitioners and service department heads / managers.

Due to rapid changes in technology and practice certain portions of the profile may be validated more frequently to ensure that the profiles accurately reflect workplace needs.

Updated profiles are subject to approval by the CAMRT Board of Directors.

Additional Notes

In order to fully understand and utilize the competency profiles, it is important to be aware of the following principles:

- 1. The competencies in each profile are interdependent, each competency informing and qualifying other competencies. Competencies are not intended to be applied in isolation.
- 2. The competencies should be considered as an array of abilities which the MRT brings to the workplace. The MRT performs appropriate competencies in a manner consistent with the situation at hand, while complying with organizational directives. The competencies are not intended to be applied in the sequence listed, nor should they be considered a protocol.
- 3. Performance of a competency requires the application of learning which may involve the cognitive domain (knowledge and thinking skills), the affective domain (attitudes and values) and the psychomotor domain (manual skills).
- 4. The competency profiles define the key learning outcomes that should be the product of accredited education programs. They do not constitute a complete educational curriculum nor do they define a learning process; these should be developed by appropriately qualified program personnel.
- 5. The profile is intended to set a meaningful national standard for each discipline without being overly prescriptive. It provides a guide for curriculum development. Curriculum should incorporate the expectations stated in the definition of entry-level proficiency.

| Module | A Professional Practice | AE |
|--------|---|----|
| A.1 | Legal and Ethical Requirements | |
| A.1.1 | Practice within provincial scope of practice | С |
| A 1 D | Comply with federal and provincial legislation and regulations affecting the practice of medical | C |
| A.1.2 | radiation technology | |
| A 1 2 | Comply with requirements of provincial regulatory body, including applicable Standards of Practice | Α |
| A.1.5 | and sexual abuse prevention guidelines | |
| A.1.4 | Practice within provincial regulatory or national association code of ethics, as relevant | C |
| A.1.5 | Practice in a manner that recognizes patient's legal rights | C |
| A.2 | Professional Behaviour | |
| A.2.1 | Present a professional appearance and manner | C |
| A.2.2 | Interact respectfully with others | C |
| A.2.3 | Provide care in an unbiased manner | C |
| A.2.4 | Practice within limits of personal knowledge and skills | С |
| A.2.5 | Comply with organizational policies and directives | C |
| A.2.6 | Maintain thorough and complete workplace documentation | C |
| A.2.7 | Respond professionally to changes impacting the practice environment | Α |
| A.2.8 | Utilize techniques to manage personal stress in the workplace | S |
| A.2.9 | Utilize basic conflict management techniques | S |
| A.2.10 | Respond professionally to feedback received from others | C |
| A.2.11 | 1 Provide constructive feedback to others S | |
| A.2.12 | Provide information and guidance to students in the medical radiation technology workplace. | А |
| A.2.13 | 3 Engage in reflective practice C | |
| A.2.14 | 4 Implement a learning plan to enhance personal knowledge and skills C | |
| A 2 15 | Demonstrate basic knowledge of current and emerging issues in health care relevant to the practice | А |
| A.2.13 | of medical radiation technology | |
| A 2 16 | Demonstrate basic knowledge of current and emerging practices and technological developments in | А |
| A.2.10 | the field of medical radiation technology | |
| A.3 | Communication | |
| A.3.1 | Use effective written communication skills | С |
| A.3.2 | Use effective oral communication skills | C |
| A.3.3 | Use effective interpersonal skills | С |
| A.3.4 | Utilize medical terminology in professional communication | С |
| Δ35 | Explain complex and technical matters related to medical radiation technology to the level of the | С |
| / | respondent's understanding | |
| A.4 | Decision Making | |
| Δ 4 1 | Appraise decision options based on best practice evidence, clinical information, resource | С |
| 7 | implications and other contextual factors | |
| A.4.2 | Use professional judgement to reach decisions | С |
| A.4.3 | Take responsibility for decisions and actions | C |
| A.5 | Interprofessional Practice | |
| A.5.1 | Recognize the roles of health care professionals commonly encountered in the medical radiation technology workplace | A |

| A.5.2 | Contribute productively to teamwork and collaborative processes | С |
|-------|--|---|
| A.5.3 | Contribute knowledge of medical radiation technology in collaborative practice | С |
| A.6 | Use of Resources | |
| A.6.1 | Prioritize workflow to optimize patient care | С |
| A.6.2 | Prioritize workflow to optimize use of resources | С |
| A.6.3 | Monitor inventory of materials and supplies, and respond | С |
| A.7 | Quality Assurance | |
| A 7 1 | Maintain awareness of factors in the clinical environment that may affect delivery of care, and take | С |
| A.7.1 | appropriate action | |
| A.7.2 | Participate in activities that support a quality assurance program | Α |
| A.7.3 | Apply principles of risk management | Α |
| A.8 | Research | |
| A.8.1 | Demonstrate basic knowledge of research methodology and ethics | Α |
| A.8.2 | Critically appraise professional literature to assess relevance to practice | Α |
| A.8.3 | Participate in activities that require application of research methodology | Α |

| Module | B Patient Management | AE |
|--------|---|-------|
| B1 | Patient Interactions | |
| B.1.1 | Respect the dignity, privacy and autonomy of the patient | С |
| B.1.2 | Maintain professional boundaries | |
| B.1.3 | Recognize and respond appropriately to cultural, religious and socio-economic variables affecting | C |
| | patient management | |
| B.1.4 | Adapt interactions to enhance communication with the patient and support persons | С |
| B.1.5 | Provide complete information about procedures to patient and support persons and verify | С |
| | understanding | |
| B.1.6 | Respond to questions from patient and/or support persons or direct them to appropriate personnel | С |
| B.1.7 | Ensure ongoing informed consent to procedures | С |
| B.2 | Patient Safety | |
| B.2.1 | Ensure a safe physical environment | С |
| B.2.2 | Verify patient identity | С |
| B.2.3 | Verify accuracy and completeness of pre-procedure documentation | С |
| B.2.4 | Transport patient safely | С |
| B.2.5 | Transfer patient safely | С |
| B.2.6 | Utilize immobilization devices | С |
| B.2.7 | Ensure proper function of patient's supportive devices and equipment | С |
| B.2.8 | Assess and respond to any changes in patient condition | С |
| B.2.9 | Recognize medical emergencies, and respond | S |
| B.2.10 | Ensure post-procedure transfer of care | С |
| B.2.11 | Verify accuracy and completeness of post-procedure documentation | С |
| B.2.12 | Ensure entry of information to data archiving system | C |
| B.3 | Patient Assessment and Care | |
| B.3.1 | Enhance patient comfort | С |
| B.3.2 | Review clinical history provided relative to requested procedure and address discrepancies | С |
| B.3.3 | Obtain information from patient or support person | C |
| B.3.4 | Identify clinical relevant details and respond | C |
| B.3.5 | Determine patient's pregnancy status and respond | C |
| B.3.6 | Assess patient for contraindications to procedure and respond | C |
| B.3.7 | Perform venipuncture | С |
| B.3.8 | Assist with administration of pharmaceuticals | C |
| B.3.9 | Adapt procedures based upon patient's physical and cognitive condition | С |
| B.3.10 | Provide care for patient's physiological needs | С |
| B.3.11 | Provide patient interventions as listed in Appendix 1 | C/S/A |
| B.3.12 | Advise patient of necessary post-procedure follow-up | C |

| Modul | e C Health and Safety | AE |
|--------|---|----|
| C1 | Infection Control and Materials Handling | |
| C.1.1 | Employ routine practices for infection control | С |
| C.1.2 | Employ transmission-based precautions | С |
| C.1.3 | Follow standardized procedure for patients with compromised immunity | С |
| C.1.4 | Use aseptic technique | С |
| C.1.5 | Use sterile technique | S |
| C.1.6 | Follow standardized procedures for handling and disposing of sharps, and contaminated and | С |
| | biohazardous materials | |
| C.2 | Self-Protection | |
| C.2.1 | Utilize protective equipment | С |
| C.2.2 | Employ proper body mechanics | С |
| C.2.3 | Ensure a safe working environment | С |
| C.3 | Radiation Safety practices | |
| C.3.1 | Apply ALARA principle | С |
| C.3.2. | Apply knowledge of radiation effects and risks | С |
| C.3.3 | Use protective devices and apparel for personnel | С |
| C.3.4 | Implement safe practices to minimize radiation dose to personnel and support persons | С |
| C.3.5 | Implement safe practices to minimize radiation dose to patients | С |
| C.3.6 | Monitor personal radiation exposure and respond | С |
| C.4 | Radiation Safety Education | |
| C.4.1 | Provide information regarding radiation risk and safe practices | С |
| C.4.2 | Provide education regarding organ sensitivities and safe practices | S |
| C.5 | Emergency Procedures | |
| C.5.1 | Recognize emergency situations involving equipment listed in Appendices 2 & 5 and respond | Α |

| Modul | e D Operation of Equipment | AE |
|-------|---|-------|
| D1 | Principles of Radiological Technology Equipment | |
| D.1.1 | Apply knowledge of radiation physics | Α |
| D.1.2 | Apply knowledge of operational components of imaging systems listed in Appendix 2 | С |
| D.1.3 | Apply knowledge of radiation interactions | А |
| D.1.4 | Apply knowledge of computer technology | А |
| D.2 | Image Acquisition and Management | |
| D.2.1 | Operate imaging systems listed in Appendix 2 * | С |
| D.2.2 | Select and optimize parameters for performing a procedure | С |
| D.2.3 | Utilize common accessory equipment listed in Appendix 5 | С |
| D.2.4 | Activate, monitor, and manage image acquisition | С |
| D.2.5 | Perform post-processing on acquired image data | С |
| D.2.6 | Utilize digital networking and archiving system | С |
| D.2.7 | Evaluate images for the purpose of reject analysis | С |
| D.3 | Equipment Quality Control ** | |
| D.3.1 | Assess performance of imaging equipment as listed in Appendix 2 and respond | C/S/A |
| D.3.2 | Assess performance of accessory equipment as listed in Appendix 5 and respond | S/A |
| D.4 | Image Quality | |
| D.4.1 | Apply knowledge of principles affecting image quality | С |
| D.4.2 | Evaluate diagnostic quality of image and respond | С |
| D.4.3 | Verify accuracy of patient demographics | С |
| D.4.4 | Verify visibility and accuracy of radiographic markers and annotations | С |
| D.4.5 | Evaluate image for artifacts and respond | С |
| | Other Imaging Modalities | |
| D.5.1 | Apply knowledge of basic principles of PET/CT | А |
| D.5.2 | Apply knowledge of basic principles of magnetic resonance imaging | А |
| D.5.3 | Apply knowledge of basic principles of diagnostic ultrasound | А |
| D.5.4 | Apply knowledge of basic principles of SPECT/CT | А |

Note * Operation of mammographic and or BMD equipment may need to be assessed in another environment in some cases

Note ** It is recognized that assessment environments for Quality Control procedures will vary.

| Modul | e E Procedure Management | AE | | |
|-------|--|-------|--|--|
| E1 | Clinical principles | | | |
| E.1.1 | Apply knowledge of gross anatomy, relational anatomy and physiology related to the imaging of | А | | |
| | anatomical structures | | | |
| E.1.2 | Differentiate anatomical structure on images | | | |
| E.1.3 | Apply knowledge of pathologies, anomalies and conditions listed in Appendix 3 | A | | |
| E.1.4 | Apply knowledge of imaging procedures and protocols listed in Appendix 4 in various clinical environments and modalities ** | C/S/A | | |
| E.1.5 | Apply knowledge of the effects of pharmaceutical agents listed in Appendix 6 as they relate to procedures | A | | |
| E.2 | Imaging Procedures ** | | | |
| E.2.1 | Plan imaging procedure utilizing data available from clinical information, reports and previous diagnostic studies | C/S/A | | |
| E.2.2 | Position patient for imaging procedures as listed in Appendix 4 utilizing anatomical landmarks and relational anatomy | C/S/A | | |
| E.2.3 | Adapt positioning in response to patient condition and clinical environment | C/S/A | | |
| E.2.4 | Adapt protocol in response to patient condition and clinical environment | C/S/A | | |
| E.2.5 | Align imaging system to demonstrate required anatomical structure(s) | C/S/A | | |
| E.2.6 | Distinguish patterns consistent with normal results and normal variants | C/S/A | | |
| E.2.7 | Recognize patterns consistent with abnormal results and pathologies listed in Appendix 3 | C/S/A | | |
| E.2.8 | Recognize conditions requiring urgent action and respond | C/S/A | | |
| E.2.9 | Evaluate results to determine if further image are required | C/S/A | | |
| E.3 | Pharmaceutical Administration | | | |
| E.3.1 | Assess patient for contraindications to contrast media and respond | С | | |
| E.3.2 | Prepare contrast media | C | | |
| E.3.3 | Administer contrast media via appropriate route | C | | |
| E.3.4 | Prepare and administrate pharmaceutical agents | S | | |
| E.3.5 | Perform rectal tube insertion | A | | |

Note **

It is realized not all procedures listed in Appendix 4 can be assessed in a clinical environment. Frequency of the exam and regional / facility protocols will impact the assessment environment. However, every attempt must be made to utilize the clinical environment for assessment purposes.

Radiological Technology Appendix 1: Patient Interventions

This Appendix lists the patient interventions referred to in competency B.3.11

| | Intervention |
|-----|---------------------------------------|
| 1.1 | Assist with administration of oxygen. |
| 1.2 | Assist with suctioning. |
| 1.3 | Administer bedpans and urinals. |
| 1.4 | Monitor vital signs. |
| 1.5 | Perform CPR. |
| 1.6 | Insert rectal catheters. |

Radiological Technology Appendix 2: Imaging Systems

| Equipment (with reference to competencies C.5.1, D.1.2, D.2.1) | | Related QC | Specific Quality Control Procedures (with reference to competency D.3.1) | | | |
|--|----------------------------|---------------|--|--|--|--|
| | | | 2.1.1 | Environmental inspection | | |
| | | | 2.1.2 | Visual inspection | | |
| | | • | 2.1.3 | X-Ray beam filtration (half value layer) | | |
| | | | 2.1.4 | Daily start up and shut down procedures | | |
| | | | 2.1.5 | X-Ray tube shielding (leakage) | | |
| | | | 2.1.6 | X-ray beam - Bucky tray (image receptor) alignmer | | |
| 2.1 | Radiographic | | 2.1.7 | X-ray beam perpendicularity | | |
| | | | 2.1.8 | Automatic exposure control (reproducibility and linearity) | | |
| | | | 2.1.9 | Generator load factors accuracy (kV, loading time, mAs) | | |
| | | | 2.1.10 | Minimum irradiation time capability (generator) | | |
| | | | 2.1.11 | Radiation output linearity (generator) | | |
| | | | 2.1.12 | Radiation output reproducibility (generator) | | |
| | | | | | | |
| | | > | 2.2.1 | Environmental inspection | | |
| | Fluoroscopic (radioscopic) | | 2.2.2 | Visual inspection | | |
| | | | 2.2.3 | X-ray beam filtration (half value layer) | | |
| | | | 2.2.4 | Daily start-up and shut down procedures | | |
| | | | 2.2.5 | X-ray tube shielding (leakage radiation) | | |
| 2.2 | | | 2.2.6 | Automatic brightness control (ABC) | | |
| | | | 2.2.7 | Contrast and spatial resolution | | |
| | | | 2.2.8 | Focal spot to skin distance limitation | | |
| | | | 2.2.9 | High-level irradiation control activation | | |
| | | | 2.2.10 | Load factors accuracy | | |
| | | | 2.2.11 | Maximum air kerma rates | | |
| | | | | | | |
| | | > | 2.3.1 | Environmental inspection | | |
| | | | 2.3.2 | Visual inspection | | |
| | | | 2.3.3 | X-Ray beam filtration (half value layer) | | |
| | Computed tomography (CT) | | 2.3.4 | X-Ray tube shielding (leakage) | | |
| | | | 2.3.5 | Contrast resolution | | |
| | | | 2.3.6 | CT number accuracy | | |
| | | | 2.3.7 | | | |
| • • | | | 2.3.8 | | | |
| 2.3 | | | 2.3.9 | Detector response (KV) | | |
| | | | 2.3.10 | Image noise | | |
| | | | 2.3.11 | | | |
| | | | 2.3.12 | Laser alignment | | |
| | | | 2.3.13 | Linearity of CT numbers | | |
| | | | 2.3.14 | Primary door interiock | | |
| | | | 2.3.15 | Spatial resolution | | |
| | | | 2.3.10 | Daily air calibration | | |
| | | | 2.3.17 | | | |

| | | | 2.4.1 | Equipment warm-up | |
|-----|--|----------|--------|---|--|
| | | | 2.4.2 | Visual inspection of equipment | |
| | | > | 2.4.3 | Assessment of display monitor using SMPT or TG18- QC test patterns | |
| | | | 2.4.4 | IP cleaning and inspection | |
| 2.4 | Computed radiography (CR) | | 2.4.5 | El accuracy and reproducibility | |
| | | | 2.4.6 | Dynamic range | |
| | | | 2.4.7 | Noise, uniformity, image artifacts | |
| | | | 2.4.8 | Spatial resolution | |
| | | | 2.4.9 | Contrast detectability | |
| | | | 2.4.10 | Digital detector residual image (erasure) | |
| | | | 2.4.11 | CR reader calibration | |
| | | | | | |
| | | | 2.5.1 | Equipment warm-up | |
| | Direct radiography (DR) | | 2.5.2 | Visual inspection of equipment | |
| | | | 253 | Assessment of display monitor using SMPT or TG18- | |
| | | • | 2.3.5 | QC test patterns | |
| | | | 2.5.4 | El accuracy and reproducibility | |
| 2.5 | | | 2.5.5 | Dynamic range | |
| | | | 2.5.6 | Noise, uniformity, image artifacts | |
| | | | 2.5.7 | Spatial resolution | |
| | | | 2.5.8 | Contrast detectability | |
| | | | 2.5.9 | Digital detector residual image (erasure) | |
| | | | 2.5.10 | Detector calibration | |
| | | | | | |
| 2.6 | Digital networking and archival system | → | 2.6.1 | Routines as per manufacturer | |
| | | | | | |
| | Mammography | * | 2.7.1 | Environmental inspection | |
| | | | 2.7.2 | Daily start up and shut down procedures | |
| | | | 2.7.3 | Visual inspection | |
| | | | 2.7.4 | X-Ray beam filtration (half value layer) | |
| | | | 2.7.5 | Compression and detector tests | |
| 2.7 | | | 2.7.6 | Automatic exposure control (reproducibility and linearity) | |
| | | | 2.7.7 | Generator load factors accuracy (kV, loading time, mAs) | |
| | | | 2.7.8 | Minimum irradiation time capability (generator) | |
| | | | 2.7.9 | Radiation output linearity (generator) | |
| | | | 2.7.10 | Radiation output reproducibility (generator) | |
| | | | | | |
| 2.0 | | → | 2.8.1 | Accuracy | |
| 2.8 | Bone mineral densitometry | | 2.8.2 | Precision | |

Radiological Technology Appendix 3: Pathology

This Appendix lists the pathologies, anomalies and conditions referred to in competencies E.1.3 and E.2.7

| | 1. Skeletal | | 2. Skeletal System | | | 3. Respiratory System |
|---------|-------------------|--------|---------------------------------------|--|--------|--|
| | Jystem | | (other) | | | |
| 3.1.1 | Avulsion | 3.2.1 | Advanced or delayed bone age | | 3.3.1 | Asthma |
| 3.1.2 | Bennett's | 3.2.2 | Ankylosing spondylitis | | 3.3.2 | Atelectasis |
| 3.1.3 | Bimalleolar | 3.2.3 | Aseptic necrosis | | 3.3.3 | Bronchiectasis |
| 3.1.4 | Blow-out | 3.2.4 | Cystic bone lesion | | 3.3.4 | Bronchitis |
| 3.1.5 | Boxer's | 3.2.5 | Developmental dysplasia of the hip | | 3.3.5 | Carcinoma of lungs |
| 3.1.6 | Closed | 3.2.6 | Dislocation | | 3.3.6 | Chronic obstructive pulmonary disease (COPD) |
| 3.1.7 | Colle's | 3.2.7 | Gout | | 3.3.7 | Cystic fibrosis |
| 3.1.8 | Comminuted | 3.2.8 | Joint effusion | | 3.3.8 | Emphysema |
| 3.1.9 | Complete | 3.2.9 | Kyphosis | | 3.3.9 | Empyema |
| 3.1.10 | Compound | 3.2.10 | Legge-Calve-Perthe's disease | | 3.3.10 | Epiglottitis, croup |
| 3.1.11 | Compression | 3.2.11 | Lordosis | | 3.3.11 | Foreign body |
| 3.1.12 | Contrecoup | 3.2.12 | Metastatic bone lesions | | 3.3.12 | Hemothorax |
| 3.1.13 | Depressed | 3.2.13 | Multiple myeloma | | 3.3.13 | Lung abscess |
| 3.1.14 | Displaced | 3.2.14 | Osgood Schlatter's disease | | 3.3.14 | Metastasis |
| 3.1.15 | Greenstick | 3.2.15 | Osteogenesis imperfecta | | 3.3.15 | Pleural effusion |
| 3.1.16 | Hangman's | 3.2.16 | Osteoarthritis | | 3.3.16 | Pneumonia |
| 3.1.17 | Impacted | 3.2.17 | Osteomyelitis | | 3.3.17 | Pneumothorax |
| 3.1.18 | Incomplete | 3.2.18 | Osteoporosis | | 3.3.18 | Pulmonary edema |
| 3.1.19 | Intertrochanteric | 3.2.19 | Osteosarcoma | | 3.3.19 | Pulmonary emboli |
| 3.1.20 | Linear | 3.2.20 | Paget's (osteitis deformans) | | 3.3.20 | Pulmonary infarct |
| 3.1.21 | Longitudinal | 3.2.21 | Rheumatoid arthritis | | 3.3.21 | Respiratory distress syndrome – adult and child |
| 3.1.22 | March | 3.2.22 | Scoliosis | | 3.3.22 | Severe acute respiratory syndrome (SARS) |
| 3.1.23 | Monteggia | 3.2.23 | Spina Bifida | | 3.3.23 | Sinusitis |
| 3.1.24 | Oblique | 3.2.24 | Spondylolisthesis | | 3.3.24 | Subcutaneous emphysema |
| 3.1.25 | Open | 3.2.25 | Spondylolysis | | 3.3.25 | Tuberculosis |
| 3.1.26 | Pathological | 3.2.26 | Spondylosis | | | |
| 3.1.27 | Salter-Harris | 3.2.27 | Subluxation | | J | |
| 3.1.28 | Simple | | | | | |
| 3.1.29 | Smith's | | | | | |
| 3.1.30 | Spiral | | | | | |
| 3 1 3 1 | Supracondylar | 1 | | | | |

3.1.32Transverse3.1.33Trimalleolar3.1.34Undisplaced

| | 4. Gastrointestinal System |
|--------|---------------------------------------|
| 3.4.1 | Achalasia |
| 3.4.2 | Anemia |
| 3.4.3 | Ascites |
| 3.4.4 | Bowel obstruction |
| 3.4.5 | Carcinoma of stomach ststomachstomach |
| 3.4.6 | Cholecystitis |
| 3.4.7 | Cholelithiasis |
| 3.4.8 | Cirrhosis |
| 3.4.9 | Colorectal cancer |
| 3.4.10 | Crohn's disease |
| 3.4.11 | Diabetes mellitus |
| 3.4.12 | Diverticulitis |
| 3.4.13 | Dysphasia |
| 3.4.14 | Esophageal atresia |
| 3.4.15 | Esophageal carcinoma |
| 3.4.16 | Esophageal varices |
| 3.4.17 | Foreign body |
| 3.4.18 | Gastroesophageal reflux |
| 3.4.19 | Hemangioma |
| 3.4.20 | Hepatitis |
| 3.4.21 | Hiatal hernia |
| | Diaphragmatic/ Inguinal |
| | Hernia |
| 3.4.22 | Hypertrophic pyloric |
| | stenosis |
| 3.4.23 | Hypoglycemia |
| 3.4.24 | lleus |
| 3.4.25 | Intussusception |
| 3.4.26 | Liver cancer |
| 3.4.27 | Pancreatic cancer |
| 3.4.28 | Pancreatitis |
| 3.4.29 | Peptic / duodenal ulcers |
| 3.4.30 | Pneumoperitoneum |
| 3.4.31 | Situs inversus |
| 3.4.32 | Tracheoesophageal fistula |
| 3.4.33 | Ulcerative colitis |
| 3.4.34 | Volvulus |

| | 5. Urinary System |
|--------|--------------------|
| 3.5.1 | Adenocarcinoma |
| 3.5.2 | Bladder carcinoma |
| 3.5.3 | Calculi |
| 3.5.4 | Cystitis |
| 3.5.5 | Cysts |
| 3.5.6 | Duplication |
| 3.5.7 | Ectopic kidney |
| 3.5.8 | Hydronephrosis |
| 3.5.9 | Hydroureter |
| 3.5.10 | Metastasis |
| 3.5.11 | Polycystic kidney |
| 3.5.12 | Prostatic |
| 3.5.13 | Renal colic |
| 3.5.14 | Renal failure |
| 3.5.15 | Renal hypertension |
| 3.5.16 | Vesicoureteral |

| | 6. Reproductive |
|-------|----------------------|
| 2 6 1 | Adenocarcinoma of |
| 3.0.1 | breast |
| 262 | Adenocarcinoma of |
| 3.6.2 | prostate |
| 2 6 2 | Carcinoma in situ of |
| 3.0.3 | breast |
| 264 | Fibroadenoma of |
| 5.0.4 | breast |
| 265 | Fibroquetic broast |
| 5.0.5 | FIDIOCYSLIC DI Edist |
| 3.6.6 | Infertility (female) |
| 3.6.7 | Uterine fibroids |
| | 7. Neurological | | 8. Cardiovascular | | 9. Hematopoietic |
|--------|--|----------------|--|-------|--|
| 3.7.1 | Alzheimer's | 3.8.1 | Aneurysm | 3.9.1 | Leukemia |
| 3.7.2 | Cerebral hemorrhage – epidural, subdural, subarachnoid | 3.8.2 | Angina pectoralis | 3.9.2 | Lymphoma: Hodgkin's and non-Hodgkin's |
| 3.7.3 | Cerebrovascular accident (CVA) | 3.8.3 | Aortic dissection | | |
| 3.7.4 | Glioma | 3.8.4 | Aortic stenosis | | |
| 3.7.5 | Head injuries – concussion, contusion, fractures | 3.8.5 | Arrhythmias | | |
| 3.7.6 | Herniated disc | 3.8.6 | Arteriosclerosis | | |
| 3.7.7 | Hydrocephaly | 3.8.7 | Arteriovenous fistula /malformation | | |
| 3.7.8 | Meningitis | 3.8.8 | Atherosclerosis | | |
| 3.7.9 | Metastasis | 3.8.9 | Congestive heart failure (CHF) | | |
| 3.7.10 | Parkinson's disease | 3.8.10 | Coronary artery disease | | |
| 3.7.11 | Spina bifida | 3.8.11 | Dextrocardia, septal defects | | |
| 3.7.12 | Transient ischemic attack (TIA) | 3.8.12 | Embolus | | |
| | | 3.8.13 | Hypertension | | |
| | | 3.8.14 | Myocardial infarction | | |
| | | 3.8.15 | Peripheral vascular disease (PVD) | | |
| | | <u>3.8.1</u> 6 | Stenosis | | |
| | | 3.8.17 | Thrombus | | |

Radiological Technology Appendix 4: Imaging Procedures

This Appendix lists the imaging procedures referred to in competencies E.1.4 and E.2.2

Important note regarding terminology

During the 1960s a former CAMRT Council of Education made the decision to use the terms "anterior oblique view / posterior oblique view" to define the position of the patient in relationship to the image receptor as a means to describe the positioning of the patient when performing oblique's for particular procedures.

It has been very confusing over the years with some programs using the terms anterior oblique/posterior oblique and others using the AP oblique/PA oblique terminology.

Programs have expressed their concern regarding the confusion caused by this discrepancy in use of terminology and requested a change. As well the internationally educated MRTs are not aware of the unique Canadian terminology. For these reasons, effective with the implementation of this competency profile, the terms anterior oblique view /posterior oblique view will no longer be used.

The new terminology will be

1. AP oblique/PA oblique to describe the projections

2. RPO/LPO and RAO/LAO to describe the position of the patient

| | Structure | | Projection / Position |
|-----|-----------------|-------|---|
| | Skeletal system | 1 | |
| | | 4.1.1 | Posteroanterior (PA) |
| | | 4.1.2 | Anteroposterior (AP) |
| 4.1 | Finger | 4.1.3 | Posteroanterior (PA) oblique |
| | | 4.1.4 | Lateral |
| | | 4.2.1 | Posteroanterior (PA) |
| 4.2 | Thumh | 4.2.2 | Anteroposterior (AP) |
| 4.2 | Inumb | 4.2.3 | Posteroanterior (PA) oblique |
| | | 4.2.4 | Lateral |
| | | 4.3.1 | Posteroranterior (PA) |
| | Hand | 4.3.2 | Anteroposterior (AP) |
| 4.2 | | 4.3.3 | Posteroanterior (PA) oblique |
| 4.3 | | 4.3.4 | Anteroposterior (AP) obliques (bilateral) |
| | | 4.3.5 | Lateral, extension |
| | | 4.3.6 | Lateral, fan |
| | | 4.4.1 | Posteroanterior (PA) |
| 4.4 | Wrist | 4.4.2 | Posteroanterior (PA) oblique |
| | | 4.4.3 | Lateral |
| 4 5 | Coonhoid | 4.5.1 | Posteroanterior (PA) with ulnar deviation |
| 4.5 | Scapholo | 4.5.2 | Posteroanterior (PA) axial |
| 1.0 | Foregree | 4.6.1 | Anteroposterior (AP) |
| 4.6 | Forearm | 4.6.2 | Lateral |
| | | 4.7.1 | Anteroposterior (AP) |
| 47 | Elbow | 4.7.2 | Anteroposterior (AP) oblique (medial rotation) |
| 4.7 | | 4.7.3 | Anteroposterior (AP) oblique (lateral rotation) |
| | | 4.7.4 | Lateral (routine) |

| | | 4.7.5 | Laterals (radial head) |
|-------|---------------------------|---------|---|
| | | 4.7.6 | Acute flexion |
| | | 4.8.1 | Anteroposterior (AP) |
| 4.8 | Humerus | 4.8.2 | Lateral |
| | | 4.8.3 | Transthoracic lateral |
| | | 4.9.1 | Anteroposterior (AP) arm neutral rotation |
| | | 4.9.2 | Anteroposterior (AP) arm external rotation |
| | | 4.9.3 | Anteroposterior (AP) arm internal rotation |
| 1.0 | Chauldar | 4.9.4 | Anteroposterior (AP) oblique (glenoid) |
| 4.9 | Shoulder | 4.9.5 | Posteroanterior (PA) oblique scapular Y |
| | | 4.9.6 | Anteroposterior (AP) oblique scapular Y |
| | | 4.9.7 | Inferosuperior axial |
| | | 4.9.8 | Superoinferior axial |
| | | 4.10.1 | Anteroposterior (AP) |
| 4.10 | Clavicle | 4.10.2 | Anteroposterior (AP) axial |
| 4.11 | Acromio-clavicular joints | 4.11.1 | Anteroposterior (AP) with and without weights |
| | | 4.12.1 | Anteroposterior (AP) |
| 4.12 | Scapula | 4.12.2 | Lateral |
| | | 4.13.1 | Anteroposterior (AP) |
| 4.13 | Toes | 4.13.2 | Anteroposterior (AP) obligue |
| | | 4.13.3 | Lateral |
| | Foot | 4.14.1 | Anteroposterior (AP) axial |
| | | 4.14.2 | Anteroposterior (AP) obligue (medial rotation) |
| 4.14 | | 4.14.3 | Lateral |
| | | 4.14.4 | Anteroposterior (AP) axial weight bearing |
| | | 4.14.5 | Lateral weight bearing |
| | | 4.15.1 | Anteroposterior (AP) |
| 4.15 | Ankle | 4.15.2 | Anteroposterior (AP) oblique 15 – 20 degree medial rotation |
| | | 4.15.3 | Lateral |
| 4.4.6 | Calaaria | 4.16.1 | Plantodorsal axial |
| 4.16 | Calcaneus | 4.16.2 | Lateral |
| | | 4.17.1 | Anteroposterior (AP) |
| 4.17 | libia and fibula | 4.17.2 | Lateral |
| | | 4.18.1 | Anteroposterior (AP) |
| | | 4.18.2 | Posteroanterior (PA) |
| | | 4.18.3 | Anteroposterior (AP) oblique medial rotation |
| | | 4.18.4 | Anteroposterior (AP) obligue lateral rotation |
| | | 4.18.5 | Posteroanterior (PA) oblique medial rotation |
| 4.18 | Knee | 4.18.6 | Posteroanterior (PA) obligue lateral rotation |
| | | 4.18.7 | Lateral |
| | | 4.18.8 | Anteroposterior (AP) weight bearing |
| | | 4.18.9 | Anteroposterior (AP) axial (intercondvloid fossa) |
| | | 4.18.10 | Posteroanterior (PA) axial (intercondvloid fossa) |
| | | 4.19.1 | Anteroposterior (AP) |
| | | 4.19.2 | Posteroanterior (PA) |
| 4.19 | Patella | 4.19.3 | Lateral |
| | | 4.19.4 | Tangential |
| | | | |

| 1 20 | Fomur | 4.20.1 | Anteroposterior (AP) |
|-------|-------------------------|--------|--|
| 4.20 | Femal | 4.20.2 | Lateral |
| | | 4.21.1 | Anteroposterior (AP) |
| 1 21 | Нір | 4.21.2 | Anteroposterior (AP) (frog legs) |
| 4.21 | | 4.21.3 | Lateral (Lauenstein) |
| | | 4.21.4 | Axiolateral (cross table) |
| | | 4.22.1 | Anteroposterior (AP) |
| 4.22 | Pelvis | 4.22.2 | Anteroposterior (AP) axial (inlet and outlet) |
| | | 4.22.3 | Acetabulum anteroposterior (AP) obliques (Judet) |
| | | 4.23.1 | Anteroposterior (AP) C1-C2 open mouth |
| | | 4.23.2 | Anteroposterior (AP) axial |
| | | 4.23.3 | Lateral |
| 4 2 2 | Comisel wentebree | 4.23.4 | Posteroanterior (PA) axial obliques - LAO / RAO |
| 4.23 | Cervical vertebrae | 4.23.5 | Anteroposterior (AP) axial obliques - LPO / RPO |
| | | 4.23.6 | Lateral hyperflexion |
| | | 4.23.7 | Lateral hyperextension |
| | | 4.23.8 | Lateral cervicothoracic (Swimmers/Twining) |
| | | 4.24.1 | Anteroposterior (AP) |
| 4.24 | Thoracic vertebrae | 4.24.2 | Lateral |
| | | 4.24.3 | Lateral cervicothoracic (Swimmers/Twining) |
| | | 4.25.1 | Anteroposterior (AP) |
| | | 4.25.2 | Lateral |
| 4.25 | Lumbar vertebrae | 4.25.3 | Posteroanterior (PA) obligues - LAO / RAO |
| | | 4.25.4 | Anteroposterior (AP) obliques - LPO / RPO |
| | | 4.25.5 | Lateral L5-S1 |
| | | 4.26.1 | Anteroposterior (AP) axial |
| 4.26 | Sacrolliac joints | 4.26.2 | Anteroposterior (AP) obliques - LPO / RPO |
| 4.27 | | 4.27.1 | Anteroposterior (AP) axial |
| 4.27 | Sacrum | 4.27.2 | Lateral |
| 4.20 | C | 4.28.1 | Anteroposterior (AP) axial |
| 4.28 | Соссух | 4.28.2 | Lateral |
| 4.20 | | 4.29.1 | Posteroanterior (PA) |
| 4.29 | Scoliosis series | 4.29.2 | Lateral |
| 4.20 | Shamoura | 4.30.1 | Posteroanterior (PA) oblique - RAO |
| 4.30 | Sternum | 4.30.2 | Lateral |
| | | 4.31.1 | Anteroposterior (AP) |
| 4.24 | Dil | 4.31.2 | Posteroanterior (PA) |
| 4.31 | RIDS | 4.31.3 | Posteroanterior (PA) obliques |
| | | 4.31.4 | Anteroposterior (AP) obliques |
| | | 4.32.1 | Posteroanterior (PA) |
| 4.32 | Sternoclavicular joints | 4.32.2 | Posteroanterior (PA) obliques |
| | | 4.33.1 | Anteroposterior (AP) axial (Towne) |
| 4.33 | Skull | 4.33.2 | Posteroanterior (PA) axial (Caldwell) |
| | | 4.33.3 | Lateral |
| | | 4.34.1 | Parietoacanthial (Waters) |
| 4.34 | Sinuses | 4.34.2 | PA axial (Caldwell) |
| - | | 4.34.3 | Lateral |
| 4.35 | Facial bones | 4.35.1 | Posteroanterior (PA) axial (Caldwell) |
| | | | |

| | | 4.35.2 | Parietoacanthial (Waters) |
|------|---------------------------|--------|---|
| | | 4.35.3 | Acanthioparietral (Reverse Waters) |
| | | 4.35.4 | Lateral |
| | | 4.36.1 | Posteroanterior (PA) axial |
| 4.36 | Orbits | 4.36.2 | Parietoacanthial (modified Waters) |
| | | 4.36.3 | Lateral |
| 4 27 | Orbits (foreign body) | 4.37.1 | Parietoacanthial (modified Waters) |
| 4.37 | Orbits (loreign body) | 4.37.2 | Lateral |
| 4 20 | Nasal honos | 4.38.1 | Parietoacanthial (Waters) |
| 4.38 | Nasar Dones | 4.38.2 | Lateral |
| | | 4.39.1 | Parietoacanthial (Waters) |
| 4.20 | Zygomatic arches | 4.39.2 | Tangential |
| 4.39 | | 4.39.3 | Anteroposterior (AP) axial (Towne) |
| | | 4.39.4 | Submentovertical (SMV) |
| | Mandible | 4.40.1 | Anteroposterior (AP) axial (modified Towne) |
| | | 4.40.2 | Posteroanterior (PA) axial |
| 4.40 | | 4.40.3 | Anteroposterior (AP) |
| 4.40 | | 4.40.4 | Posteroanterior (PA) |
| | | 4.40.5 | Axiolateral |
| | | 4.40.6 | Axiolateral obliques |
| 1 11 | Tomporo mandibular icinta | 4.41.1 | Anteroposterior (AP) axial (modified Towne) |
| 4.41 | | 4.41.2 | Axiolateral (open and closed mouth) |
| | Digestive System | | |
| | | 4.42.1 | Anteroposterior (AP) supine |
| 4.42 | Abdomen | 4.42.2 | Anteroposterior (AP) erect |
| | | 4.42.3 | Left lateral decubitus |

Important note regarding 4.43 -4.47

It is realized that imaging of the digestive system is changing. The following projections / positions are listed with the understanding that some students will not obtain clinical exposure to the procedures. The level of AE is academic and these will not be tested on the certification exam. However, given in some areas of the country these procedures are being done they will remain in the profile to ensure basic curriculum remains in programs in regards to this type of imaging for the digestive system.

| 4 4 2 | Esophagus | 4.43.1 | Anteroposterior (AP) | |
|-------|---------------------|--------|---------------------------------------|--|
| 4.45 | | 4.43.2 | Lateral | |
| | | 4.44.1 | Anteroposterior (AP) | |
| 4.44 | Stomach | 4.44.2 | Posteroanterior (PA) oblique | |
| | | 4.44.3 | Lateral | |
| 4.45 | Small bowel | 4.45.1 | Anteroposterior (AP) | |
| | Large bowel | 4.46.1 | Anteroposterior (AP) (supine / erect) | |
| 1 16 | | 4.46.2 | Lateral | |
| 4.40 | | 4.46.3 | Anteroposterior (AP) oblique | |
| | | 4.46.4 | Posteroanterior (PA) oblique | |
| | | 4.47.1 | Anteroposterior (AP) | |
| 4 47 | | 4.47.2 | Posteroanterior (PA) oblique | |
| 4.47 | ERCP / Dillary tree | 4.47.3 | Anteroposterior (AP) oblique | |
| | | 4.47.4 | Lateral | |
| | | | | |

| | Respiratory System | | | | |
|------|--------------------------------------|-------------|--|--|--|
| | | 4.48.1 | Anteroposterior (AP) | | |
| 4.48 | Soft tissue neck | 4.48.2 | Lateral | | |
| | | 4.49.1 | Anteroposterior (AP) (supine / semi-erect / erect) | | |
| | | 4.49.2 | Posteroanterior (PA) | | |
| 4.49 | Chest | 4.49.3 | Lateral | | |
| | | 4.49.4 | Anteroposterior (AP) (lordotic) | | |
| | | 4.49.5 | Lateral decubiti | | |
| | Urinary System | | | | |
| 4.50 | Kidney, ureters and bladder (KUB) | 4.50.1 | Anteroposterior (AP) | | |
| | Reproductive System | | | | |
| | | 4.51.1 | Anteroposterior (AP) | | |
| 4.51 | Hystero-salpingography | 4.51.2 | Anteroposterior (AP) obliques | | |
| | | 4.52.1 | Craniocaudal | | |
| 4.52 | Mammography | 4.52.2 | Mediolateral obliques | | |
| 4.53 | Computed Tomography (routine proc | edures for) | | | |
| | | 4.53.1 | Abdomen enhanced and unenhanced | | |
| | | 4.53.2 | Abdomen for digestive system | | |
| | | 4.53.3 | Abdomen for urinary system | | |
| | | 4.53.4 | Chest enhanced and unenhanced | | |
| | | 4.53.5 | Extremities | | |
| | | 4.53.6 | Head enhanced and unenhanced | | |
| | | 4.53.7 | Neck enhanced and unenhanced | | |
| | | 4.53.8 | Pelvis enhanced and unenhanced | | |
| | | 4.53.9 | Spine | | |
| 4.54 | Bone Mineral Densitometry | | | | |
| | | 4.54.1 | Spine | | |
| | | 4.54.2 | Нір | | |
| 4.55 | Interventional Radiology (various mo | dalities) | | | |
| | | 4.55.1 | Angiography | | |
| | | 4.55.2 | Angioplasty | | |
| | | 4.55.3 | IVC filter | | |
| | | 4.55.4 | Embolization | | |
| | | 4.55.5 | Thrombolysis | | |
| | | 4.55.6 | Stent / shunt placement | | |
| | | 4.55.7 | Tube / line insertion | | |
| | | 4.55.8 | Joint injection | | |
| | | 4.55.9 | Aspiration / drainage | | |
| | | 4.55.10 | Biopsy | | |
| | | 4.55.11 | Radiofrequency ablation | | |

| Equipment (with C | Related QC | | Specific Quality Control Procedures (with reference to competency D.3.2) | | |
|----------------------|--|----------|---|--|--|
| 5.1 | Beam limiting device (manual; positive beam limitation, PBL) | → | 5.1.1 | Light field - radiation field congruence | |
| 5.0 | Grids | → | 5.2.1 | Alignment | |
| 5.2 | | | 5.2.2 | Uniformity | |
| 5.3 | Power injector (contrast media) | → | 5.3.1 | Routines as per manufacturer | |
| 5.4 | Protective apparel and devices | → | 5.4.1 | Integrity | |

Radiological Technology Appendix 5: Accessory Equipment

Radiological Technology Appendix 6: Pharmaceuticals

This Appendix lists the categories of pharmaceuticals referred to in competency E.1.5

| | Pharmaceutical Category |
|------|-------------------------|
| 6.01 | Adrenergic |
| 6.02 | Anesthetic |
| 6.03 | Antianxiety |
| 6.04 | Anticoagulant |
| 6.05 | Antidepressant |
| 6.06 | Antidiabetic |
| 6.07 | Antihistamine |
| 6.08 | Anticholinergic |
| 6.09 | Antiperistaltic |
| 6.10 | Bronchodilator |
| 6.11 | Cathartic |
| 6.12 | Contrast agent |
| 6.13 | Diuretic |
| 6.14 | Fluid and electrolytes |
| 6.15 | Glucocorticoid / NSAID |
| 6.16 | Hypoglycemic |
| 6.17 | Narcotics |
| 6.18 | Sedative |
| 6.19 | Tranquilizer |
| 6.20 | Vasodilator |

Appendix 6: Radiation Therapy Competency Profile

Radiation Therapy Competency Profile: <u>acmdtt.com/tcp</u>*

Canadian Association of Medical Radiation Technologists

COMPETENCY PROFILE

RADIATION THERAPY

January 2014

Prepared by the Radiological Technology Competency Profile Task Group © CANADIAN ASSOCIATION OF MEDICAL RADIATION TECHNOLOGISTS Suite 1300, 180 Elgin St. Ottawa, Ontario K2P 2K3

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Entry-Level Competency Profiles for Medical Radiation Technologists

RADIATION THERAPY

Principles and Definitions

The competency profiles describe the practice requirements of Medical Radiation Technologists (MRTs) at entry-level¹, in order to provide safe, effective and ethical patient care in a variety of work environments. The profiles will be of value to users both within and outside the profession, however their primary uses are to:

develop a blueprint for the CAMRT Certification Examinations

> provide a guide for the curriculum of accredited education programs The competency profile for each of the four MRT disciplines is distinct, although there is a common framework and some common content.

Each competency profile consists of a listing of competencies, defined as follows:

> A competency is a practice task that can be performed with entry-level proficiency.

Entry-level proficiency is characterized as follows:

- When presented with routine situations, the entry-level MRT performs relevant competencies in a manner consistent with generally accepted standards in the profession, independently, and within a reasonable timeframe. The entry-level MRT anticipates what outcomes to expect in a given situation, and responds appropriately, selecting and performing competencies in an informed manner.
- The entry-level MRT recognizes unusual, difficult to resolve and complex situations which may be beyond her / his capacity. The entry-level MRT takes appropriate steps to address these situations, which may include consulting with others, seeking supervision or mentorship, reviewing literature or documentation, or referring the situation to a more experienced MRT.

The competency profile for each discipline establishes a minimum standard for entry to the profession, and a foundation upon which to build:

Attainment at entry-to-practice of additional competencies, and higher levels of proficiency, is encouraged.

¹ Entry-level means initial entry into the profession.

Structural Framework

The format of the competency profiles is based upon modules, with each module representing a general area of practice. Within each module, related competencies and sub-competencies are clustered together in sections.

In situations where a given competency applies to a series of similar items (such as a list of equipment, a list of procedures, or a list of pathologies) appendices are used to avoid repetition.

The content of the modules and appendices for each discipline is shown below. The format for all four profiles is similar and the names of modules are similar. The competencies and sub-competencies in modules A and B are the same across the four disciplines, and wherever possible in the other modules similar competencies and sub-competencies are stated.

| Magnetic Resonance | Nuclear Medicine | Radiation Therapy | Radiological Technology |
|---|---|---|---|
| Module A | Module A | Module A | Module A |
| Professional Practice | Professional Practice | Professional Practice | Professional Practice |
| Legal and Ethical | Legal and Ethical | Legal and Ethical | Legal and Ethical |
| Requirements | Bequirements | Requirements | Requirements |
| Professional behaviour | Professional behaviour | Professional Behaviour | Professional behaviour |
| Communication | Communication | Communication | Communication |
| Decision making | Decision making | Decision making | Decision making |
| Inter-professional | Inter-professional | Inter-professional | Inter-professional |
| nractice | nractice | nractice | nractice |
| | | | |
| | Quality Assurance | Ouality Assurance | Quality Assurance |
| Posoarch | Pocoarch | Quality Assurance | Pocoarch |
| Research | Research | Research | Research |
| Madula D | Madula D | Madula D | Madula D |
| | Nodule B | IVIODUIE B | |
| Patient Management | Patient Wanagement | Patient Wanagement | Patient Management |
| | | | |
| Patient interactions | Patient interactions | Patient interactions | Patient interactions |
| Patient interactions Patient safety | Patient interactions Patient safety | Patient interactions Patient safety | Patient interactions Patient safety |
| Patient interactions Patient safety Patient assessment & | Patient interactions Patient safety Patient assessment & | Patient interactions Patient safety Patient assessment & | Patient interactions Patient safety Patient assessment & |
| Patient interactions Patient safety Patient assessment & care | Patient interactions Patient safety Patient assessment & care | Patient interactions Patient safety Patient assessment & care | Patient interactions Patient safety Patient assessment & care |
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| Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& materials handling | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling |
| Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection |
| Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection MR Screening | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety |
| Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection MR Screening | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices |
| Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection MR Screening MR Bioeffects | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiations safety | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices Radiation safety | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiation safety |
| Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control& materials handling Self-protection MR Screening MR Bioeffects | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiations safety education | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control and materials handling Self-protection Radiation safety practices Radiation safety education | Patient interactions Patient safety Patient assessment & care Module C Health and Safety Infection control & materials handling Self-protection Radiation safety practices Radiation safety education |

| Module D | Module D | Module D | Module D |
|-------------------------------|--------------------------|-------------------------|----------------------------|
| Operation of Equipment | Operations of | Operation of | Operation of |
| | Equipment | Equipment | Equipment |
| Principles of MR | Physics & | Principles of radiation | Principles of radiological |
| equipment | instrumentation | therapy | equipment |
| Equipment quality | Equipment operation | Equipment operation | Image acquisition & |
| control | | | management |
| Image acquisition | Equipment quality | Equipment quality | Equipment quality |
| | control | control | control |
| Image quality | Image & data quality | | Image quality |
| Other imaging | Other imaging modalities | | Other imaging |
| modalities | | | modalities |
| | | | |
| Module E | Module E | Module E | Module E |
| Procedure Management | Procedure Management | Procedure | Procedure |
| | | Management | Management |
| Clinical principles | Radiopharmacy & | Simulation | Clinical principles |
| | Laboratory procedures | | |
| Imaging procedures | Clinical procedures | Accessory devices | Imaging procedures |
| Pharmaceutical | Diagnostic procedures | Dosimetry | Pharmaceutical |
| administration | | | administration |
| | Therapeutic procedures | Treatment | |
| | Pharmaceutical | Clinical principles | |
| | Administration | | |
| | ECG procedures (12-lead) | Treatment delivery | |
| | | Patient care | |
| | | | |
| Appendix 1 | Appendix 1 | Appendix 1 | Appendix 1 |
| Patient interactions | Patient interactions | Patient interactions | Patient interactions |
| Appendix 2 | Appendix 2 | Appendix 2 | Appendix 2 |
| Common pathologies & | Equipment | Malignant tumours | Imaging systems |
| anomalies | | | |
| Appendix 3 | Appendix 3 | Appendix 3 | Appendix 3 |
| Imaging procedures | Body systems & | Non-malignant & | Pathologies |
| | pathologies | benign conditions | |
| Appendix 4 | Appendix 4 | Appendix 4 | Appendix 4 |
| Pharmaceuticals | Pharmacologic & dietary | Clinical oncology | imaging procedures |
| | agents | | |
| | Appendix 5 | | Appendix 5 |
| | Procedures | | Accessory equipment |

Relationship between the Competency Profiles and the CAMRT Certification Examinations

All competencies must be achieved and assessed in either an academic, simulated or clinical environment at an accredited education program. An Assessment Environment (AE) is indicated with each competency in the profile as a guide for programs. It is realized, based on many variable factors that an assessment environment may need to change over the term of the profile given changes in practice, or may vary from program to program.

With those competencies that refer to lists provided in the appendices, it is also realized that the same AE may not apply to everything listed based on exam frequency, and regional/facility differences. Note comments in the profile.

It is the responsibility of the education program to ensure, through assessment of competencies in the most appropriate environment that the graduate technologist is competent to practice safely and effectively at the entry to practice level in the current healthcare environment.

The CAMRT certification examinations are delivered in a multiple-choice format, and are intended to assess cognitive and affective learning related to performance of the competencies. The certification exam does not test all competencies listed in the competency profile. The list of competencies tested and the weighting applied to the competencies for testing purposes is described in the exam blueprint.

In provinces that regulate the practice of MRTs, regulatory authorities (with the exception of Quebec) require CAMRT Certification for registration purposes. However, since the certification examinations are national in scope, they do not test provincially-unique requirements.

Development and Updating of the Competency Profiles

Re-validation of the competency profiles, takes place approximately every five years. This involves an initial critical review by an expert committee, followed by consultation with regulators, education programs, practitioners and service department heads / managers.

Due to rapid changes in technology and practice certain portions of the profile may be validated more frequently to ensure that the profiles accurately reflect workplace needs.

Updated profiles are subject to approval by the CAMRT Board of Directors.

Additional Notes

In order to fully understand and utilize the competency profiles, it is important to be aware of the following principles:

- 1. The competencies in each profile are interdependent, each competency informing and qualifying other competencies. Competencies are not intended to be applied in isolation.
- 2. The competencies should be considered as an array of abilities which the MRT brings to the workplace. The MRT performs appropriate competencies in a manner consistent with the situation at hand, while complying with organizational directives. The competencies are not intended to be applied in the sequence listed, nor should they be considered a protocol.
- 3. Performance of a competency requires the application of learning which may involve the cognitive domain (knowledge and thinking skills), the affective domain (attitudes and values) and the psychomotor domain (manual skills).
- 4. The competency profiles define the key learning outcomes that should be the product of accredited education programs. They do not constitute a complete educational curriculum nor do they define a learning process; these should be developed by appropriately qualified program personnel.
- 5. The profile is intended to set a meaningful national standard for each discipline without being overly prescriptive. It provides a guide for curriculum development. Curriculum should incorporate the expectations stated in the definition of entry-level proficiency.

| Module A | Professional Practice | AE |
|----------|--|----|
| A.1 | Legal and Ethical Requirements | |
| A.1.1 | Practice within provincial scope of practice | С |
| A 1 2 | Comply with federal and provincial legislation and regulations affecting the practice | ſ |
| A.1.2 | of medical radiation technology | Ľ |
| ۸12 | Comply with requirements of provincial regulatory body, including applicable | ۸ |
| A.1.5 | Standards of Practice and sexual abuse prevention guidelines | A |
| A.1.4 | Practice within provincial regulatory or national association code of ethics, as relevant | С |
| A.1.5 | Practice in a manner that recognizes patient's legal rights | С |
| A.2 | Professional Behaviour | |
| A.2.1 | Present a professional appearance and manner | С |
| A.2.2 | Interact respectfully with others | С |
| A.2.3 | Provide care in an unbiased manner | С |
| A.2.4 | Practice within limits of personal knowledge and skills | С |
| A.2.5 | Comply with organizational policies and directives | С |
| A.2.6 | Maintain thorough and complete workplace documentation | С |
| A.2.7 | Respond professionally to changes impacting the practice environment | Α |
| A.2.8 | Utilize techniques to manage personal stress in the workplace | С |
| A.2.9 | Utilize basic conflict management techniques | S |
| A.2.10 | Respond professionally to feedback received from others | С |
| A.2.11 | Provide constructive feedback to others. | S |
| A.2.12 | Provide information and guidance to students in the medical radiation technology workplace | Α |
| A.2.13 | Engage in reflective practice | С |
| A.2.14 | Implement a learning plan to enhance personal knowledge and skills | С |
| | Demonstrate basic knowledge of current and emerging issues in health care | |
| A.2.15 | relevant to the practice of medical radiation technology | Α |
| | Demonstrate basic knowledge of current and emerging practices and technological | |
| A.2.16 | developments in the field of medical radiation technology | Α |
| A.3 | Communication | |
| A.3.1 | Use effective written communication skills | Α |
| A.3.2 | Use effective oral communication skills | С |
| A.3.3 | Use effective interpersonal skills | С |
| A.3.4 | Utilize medical terminology in professional communication | Α |
| A.3.5 | Explain complex and technical matters related to medical radiation technology to the level of the respondent's understanding | С |
| A.4 | Decision Making | |
| | Appraise decision options based on best practice evidence, clinical information. | _ |
| A.4.1 | resource implications and other contextual factors | C |
| A.4.2 | Use professional judgement to reach decisions | С |
| A.4.3 | Take responsibility for decisions and actions | С |
| A.5 | Interprofessional Practice | |
| A.5.1 | Recognize the roles of health care professionals commonly encountered in the medical radiation technology workplace | Α |

| A.5.2 | Contribute productively to teamwork and collaborative processes | С |
|-------|--|----------|
| A.5.3 | Contribute knowledge of medical radiation technology in collaborative practice | С |
| A.6 | Use of Resources | |
| A.6.1 | Prioritize workflow to optimize patient care | S |
| A.6.2 | Prioritize workflow to optimize use of resources | S |
| A.6.3 | Monitor inventory of materials and supplies, and respond | С |
| A.7 | Quality Assurance | |
| A 7 1 | Maintain awareness of factors in the clinical environment that may affect delivery | ^ |
| A.7.1 | of care, and take appropriate action | Ľ |
| A.7.2 | Participate in activities that support a quality assurance program | Α |
| A.7.3 | Apply principles of risk management | Α |
| A.8 | Research | |
| A.8.1 | Demonstrate basic knowledge of research methodology and ethics | Α |
| A.8.2 | Critically appraise professional literature to assess relevance to practice | Α |
| A.8.3 | Participate in activities that require application of research methodology | Α |

| Module B | Patient Management | AE |
|----------|--|-------|
| B.1 | Patient Interactions | |
| B.1.1 | Respect the dignity, privacy and autonomy of the patient | С |
| B.1.2 | Maintain professional boundaries | С |
| B.1.3 | Recognize and respond appropriately to cultural, religious and socio-economic variables affecting patient management | S |
| B.1.4 | Adapt interactions to enhance communication with the patient and support | С |
| B.1.5 | Provide complete information about procedures to patient and support persons and verify understanding | С |
| B.1.6 | Respond to questions from the patient and/or support persons or direct them to appropriate personnel | С |
| B.1.7 | Ensure ongoing, informed consent to procedures | C |
| B.2 | Patient Safety | |
| B.2.1 | Ensure a safe physical environment | С |
| B.2.2 | Verify patient identify | С |
| B.2.3 | Verify accuracy and completeness of pre-procedural documentation | С |
| B.2.4 | Transport patient safety | С |
| B.2.5 | Transfer patient safely | С |
| B.2.6 | Utilize immobilization devices | С |
| B.2.7 | Ensure proper function of patient's supportive devices and equipment | С |
| B.2.8 | Assess and respond to any changes in patient condition | С |
| B.2.9 | Recognize medical emergencies and respond | S |
| B.2.10 | Ensure post-procedural transfer of care | С |
| B.2.11 | Verify accuracy and completeness of post-procedural documentation | С |
| B.2.12 | Ensure entry of information to data archiving system | С |
| B.3 | Patient Assessment and Care | |
| B.3.1 | Enhance patient comfort | С |
| B.3.2 | Review clinical history provided, relative to requested procedure and address discrepancies | C |
| B.3.3 | Obtain information from patient or support person | С |
| B.3.4 | Identify clinically relevant details and respond | С |
| B.3.5 | Determine patient's pregnancy status and respond | С |
| B.3.6 | Assess patient for contraindications to procedure and respond | С |
| B.3.7 | Perform venipuncture | S |
| B.3.8 | Assist with administration of pharmaceuticals | С |
| B.3.9 | Adapt procedures based upon patient's physical and cognitive condition | С |
| B.3.10 | Provide care for patient's physiological needs | С |
| B.3.11 | Provide patient interventions as listed in Appendix 1 of profile | C/S/A |
| B.3.12 | Advise of necessary post-procedure follow-up | С |

| Model C | Health and Safety | AE |
|---|--|--|
| C.1 | Infection Control and Materials Handling | |
| C.1.1 | Employ routine practices for infection control | С |
| C.1.2 | Employ transmission-based precautions | С |
| C.1.3 | Follow standardized procedures for patients with compromised immunity | Α |
| C.1.4 | Use aseptic techniques | С |
| C.1.5 | Use sterile technique | Α |
| C.1.6 | Follow standardized procedures for handling and disposing of sharps and | С |
| | contaminated and biohazardous materials | |
| C.2 | Self-Protection | |
| C.2.1 | Utilize protective equipment | С |
| C.2.2 | Employ body mechanics | С |
| C.2.3 | Ensure a safe working environment | С |
| C 3 | Radiation Safety Practices | |
| <u> </u> | Radiation Safety Fractices | |
| C.3.1 | Apply ALARA principles | C |
| C.3.1 C.3.2 | Apply ALARA principles Apply knowledge of radiation effects and risks | C A |
| C.3.1 C.3.2 C.3.3 | Apply ALARA principles Apply knowledge of radiation effects and risks Use protective devices and apparel for personnel | C A C |
| C.3.1 C.3.2 C.3.3 C.3.4 | Apply ALARA principles Apply knowledge of radiation effects and risks Use protective devices and apparel for personnel Implement safe practices appropriate to source and equipment | C A C C |
| C.3.1 C.3.2 C.3.3 C.3.4 C.3.5 | Apply ALARA principles Apply knowledge of radiation effects and risks Use protective devices and apparel for personnel Implement safe practices appropriate to source and equipment Use imaging accessory devices | C A C C C |
| C.3.1 C.3.2 C.3.3 C.3.4 C.3.5 C.3.6 | Apply ALARA principles Apply knowledge of radiation effects and risks Use protective devices and apparel for personnel Implement safe practices appropriate to source and equipment Use imaging accessory devices Monitor personal radiation exposure and respond | C A C C C C C |
| C.3.1 C.3.2 C.3.3 C.3.4 C.3.5 C.3.6 C.3.7 | Apply ALARA principlesApply knowledge of radiation effects and risksUse protective devices and apparel for personnelImplement safe practices appropriate to source and equipmentUse imaging accessory devicesMonitor personal radiation exposure and respondPerform radiation source survey | C A C C C C C S |
| C.3.1 C.3.2 C.3.3 C.3.4 C.3.5 C.3.6 C.3.7 C.3.7 | Apply ALARA principlesApply knowledge of radiation effects and risksUse protective devices and apparel for personnelImplement safe practices appropriate to source and equipmentUse imaging accessory devicesMonitor personal radiation exposure and respondPerform radiation source surveyRadiation Safety Education | C A C C C C S |
| C.3.1 C.3.2 C.3.3 C.3.4 C.3.5 C.3.6 C.3.7 C.3.7 C.4 C.4.1 | Apply ALARA principles Apply knowledge of radiation effects and risks Use protective devices and apparel for personnel Implement safe practices appropriate to source and equipment Use imaging accessory devices Monitor personal radiation exposure and respond Perform radiation source survey Radiation Safety Education Provide education regarding radiation risks and safe practices | C A C C C C C S S |
| C.3.1 C.3.2 C.3.3 C.3.4 C.3.5 C.3.6 C.3.7 C.4 C.4.1 C.4.2 | Apply ALARA principlesApply knowledge of radiation effects and risksUse protective devices and apparel for personnelImplement safe practices appropriate to source and equipmentUse imaging accessory devicesMonitor personal radiation exposure and respondPerform radiation source surveyRadiation Safety EducationProvide education regarding radiation risks and safe practicesProvide education regarding organ sensitivities | C A C C C C S S C S |
| C.3.1 C.3.2 C.3.3 C.3.4 C.3.5 C.3.6 C.3.7 C.3.6 C.3.7 C.4 C.4.1 C.4.2 C.5 | Apply ALARA principles Apply knowledge of radiation effects and risks Use protective devices and apparel for personnel Implement safe practices appropriate to source and equipment Use imaging accessory devices Monitor personal radiation exposure and respond Perform radiation source survey Radiation Safety Education Provide education regarding radiation risks and safe practices Provide education regarding organ sensitivities Emergency Procedures | C A C C C C S S C S |

| Module D Operation of Equipment | | AE |
|---------------------------------|---|----|
| D.1 | Principles of radiation therapy equipment | |
| D1.1 | Apply knowledge of established radiation therapy modalities | С |
| D.1.2 | Apply knowledge of emerging radiation therapy modalities | Α |
| D.2 | Equipment operation | |
| D.2.1 | Apply knowledge of principles of operational components of planning equipment | S |
| D.2.2 | Apply knowledge of principles of operational component of treatment equipment | S |
| D.2.3 | Operate simulation equipment | С |
| D.2.4 | Operate external beam treatment equipment | С |
| D.2.5 | Operate brachytherapy treatment equipment | S |
| D.3 | Equipment quality control | |
| D.3.1 | Conduct quality assurance tests using appropriate equipment | С |
| D.3.2 | Assess performance of planning equipment and respond | С |
| D.3.3 | Assess performance of treatment equipment and respond | С |

| Module | ule E Procedure Management | |
|--------|--|-------|
| E.1 | Simulation (for sites/conditions listed in Appendices 2 & 3) | |
| E.1.1 | Verify appropriate treatment technique | C/S/A |
| E.1.2 | Determine optimal patient position and immobilization | C/S/A |
| E.1.3 | Prepare for procedure | C/S/A |
| E.1.4 | Construct and fit immobilization device | C/S/A |
| E.1.5 | Prepare contrast media | C/S/A |
| E.1.6 | Administer contrast media via appropriate route | C/S/A |
| E.1.7 | Assess for contraindication to contrast media and respond | C/S/A |
| E.1.8 | Perform simulation | C/S/A |
| E.1.9 | Acquire planning images | C/S/A |
| E.1.10 | Optimize image quality | C/S/A |
| E.2 | Accessory Devices | |
| E.2.1 | Produce beam modification device | S |
| E.2.2 | Produce lead/electron cut-out | S |
| E.2.3 | Prepare bolus material | S |
| E.3 | Dosimetry | |
| E.3.1 | Use treatment planning devices | S |
| E.3.2 | Contour appropriate structures | S |
| E.3.3 | Perform image fusion as required | S |
| E.3.4 | Apply dose-limiting practices according to organ sensitivities | S |
| E.3.5 | 5 Apply protocols for clinical studies A | |
| E.3.6 | Verify appropriate treatment planning techniques for sites and conditions listed in Appendices 2 & 3 | C/S/A |
| E.3.7 | Design optimal treatment plans for external beam therapy | S |
| E.3.8 | Design optimal treatment plans for brachytherapy | S |
| E.3.9 | Modify plan during treatment course as required | S |
| E.3.10 | Perform manual calculations for treatment procedures | S |
| E.4 | Treatment- Clinical Principles | |
| E.4.1 | Apply knowledge of clinical oncology concepts listed in Appendix 4 to malignant diseases listed in Appendix 2 | C/S/A |
| E.4.2 | Apply knowledge of clinical oncology concepts listed in Appendix 4 to non- malignant disease and benign conditions listed in Appendix 3 | C/S/A |
| E.4.3 | Apply knowledge of radiation physics | Α |
| E.4.4 | Apply knowledge of radiobiology | С |
| E.4.5 | Recognize appropriate treatment for sites and conditions listed in Appendices 2&3 | C/S/A |
| E.4.6 | Perform research project | С |
| E.5 | Treatment - Delivery | |
| E.5.1 | Confirm patient positioning and immobilization | С |
| E.5.2 | Apply protocols for clinical studies | Α |
| E.5.3 | Use appropriate accessory devise | С |
| E.5.4 | Acquire verification images | С |
| E.5.5 | Optimize image quality | С |
| E.5.6 | Analyze verification images and respond | С |
| E.5.7 | Justify the decision to implement treatment | С |

| E.5.8 | Administer prescribed external beam therapy to disease sites listed in Appendices 2 & 3 | C/S/A |
|--------|---|-------|
| E.5.9 | Administer prescribed brachytherapy to disease sites listed in Appendix 2 (sites | C/A |
| | are indicated with **) | |
| E.5.10 | Monitor patient during treatment delivery and respond | С |
| E.5.11 | Complete technical documentation | С |
| E.6 | Patient Care | |
| E.6.1 | Demonstrate non-judgemental caring respect for patient | С |
| E.6.2 | Provide an open and secure environment in which patients can confide | С |
| E.6.3 | Educate patient regarding treatment side effects and monitor | С |
| E.6.4 | Discuss management of treatment side effects | С |
| E.6.5 | Assess patient and respond | С |
| E.6.6 | Develop and implement individualized patient care plan | С |
| E.6.7 | Identify and respond to Patient's psychosocial needs | С |
| E.6.8 | Refer patient to support services where appropriate | С |
| E.6.9 | Evaluate and document patient progress | С |
| E.6.10 | Complete appropriate follow-up procedure | С |
| E.6.11 | Respond to inquiries on complementary and alternative medicine | S |

Radiation Therapy Appendix 1: Patient Interventions

This Appendix lists the patient interventions referred to in competency B.3.11

| | Intervention |
|-----|---------------------------------------|
| 1.1 | Assist with administration of oxygen. |
| 1.2 | Assist with suctioning. |
| 1.3 | Administer bedpans and urinals. |
| 1.4 | Monitor vital signs. |
| 1.5 | Perform CPR. |
| 1.6 | Assist with ostomy pouches. |

Radiation Therapy Appendix 2: Malignant Tumours

This Appendix lists the tumor sites with respect to treatment principles and delivery, as referred to in competencies E.1, E.3.6, E.4.1, E.4.5, E.5.8 and E.5.9

Modality for delivery is external beam for all sites with brachytherapy delivery method added for those sites indicated with **

| | Category | | Location / Condition |
|-----|------------------|-------|---|
| 2.1 | Breast | 2.1.1 | Breast ** |
| | Done and Coft | 2.2.1 | Osteosarcoma |
| 2.2 | Bone and Soft | 2.2.2 | Rhabdomyosarcoma |
| | lissue | 2.2.3 | Soft tissue sarcoma |
| | | 2.3.1 | Brain |
| | | 2.3.2 | Brainstem |
| 22 | Central Nervous | 2.3.3 | Cerebellum |
| 2.5 | System | 2.3.4 | Medulloblastoma |
| | | 2.3.5 | Neuroblastoma |
| | | 2.3.6 | Primitive neuroectodermal tumour (PNET) |
| | | 2.4.1 | Adrenal gland |
| 2.4 | Endocrine | 2.4.2 | Pituitary |
| | | 2.4.3 | Thyroid |
| | | 2.5.1 | Anal canal |
| | | 2.5.2 | Colon |
| | | 2.5.3 | Esophagus ** |
| 25 | Gastrointestinal | 2.5.4 | Hepatobiliary tract |
| 2.5 | | 2.5.5 | Liver |
| | | 2.5.6 | Pancreas |
| | | 2.5.7 | Rectum |
| | | 2.5.8 | Stomach |
| | | 2.6.1 | Bladder |
| | | 2.6.2 | Kidney |
| 2.6 | Genitourinary | 2.6.3 | Penis ** |
| | | 2.6.4 | Prostate ** |
| | | 2.6.5 | Testicle |
| | | 2.7.1 | Cervix ** |
| | | 2.7.2 | Endometrium ** |
| 2.7 | Gynecological | 2.7.3 | Ovary |
| | | 2.7.4 | Vagina ** |
| | | 2.7.5 | Vulva |
| | | 2.8.1 | Hypopharynx |
| 20 | Hood and Neels | 2.8.2 | Larynx |
| 2.8 | Head and Neck | 2.8.3 | Nasal cavity |
| | | 2.8.4 | Nasopharynx |

| | | 2.8.5 | Oral cavity |
|-------|--------------------|---------|--------------------------------|
| | | 2.8.6 | Oropharynx |
| | | 2.8.7 | Paranasal sinuses |
| | | 2.8.8 | Salivary glands |
| 2.9 | Hematological | 2.9.1 | Leukemia |
| | | 2.10.1 | Hodgkin's lymphoma |
| | | 2.10.2 | Non-Hodgkin's lymphoma |
| 2.10 | Lumanh a ratioular | 2.10.3 | Multiple myeloma |
| 2.10 | Lymphoreticular | 2.10.4 | Plasmacytoma |
| | | 2.10.5 | Thymus |
| | | 2.10.6 | Spleen |
| 2 11 | Ocular | 2.11.1 | Melanoma ** |
| 2.11 | Oculai | 2.11.2 | Retinoblastoma |
| | | 2.12.1 | Ewing's sarcoma |
| | | 2.12.2 | Neuroblastoma |
| | | 2.12.3 | Rhabdomyosarcoma |
| 2 1 2 | Pediatric | 2.12.4 | Wilms' tumour |
| 2.12 | | 2.12.5 | Central nervous system |
| | | 2.12.6 | Retinoblastoma |
| | | 2.12.7 | Leukemia |
| | | 2.12.8 | Lymphoreticular |
| 2.13 | Respiratory | 2.13.1 | Lung ** |
| | | 2.14.1 | Melanoma |
| 2.14 | Skin | 2.14.2 | Merkel cell |
| | | 2.14.3 | Non-melanoma |
| | | 2.15.1 | Bone metastasis |
| | | 2.15.2 | Brain metastasis |
| | | 2.15.3 | Esophageal obstruction ** |
| | | 2.15.4 | Hemoptysis |
| 2 15 | Palliative and | 2.15.5 | Hemorrhage |
| 2.15 | Emergency Care | 2.15.6 | Nodal metastasis |
| | | 2.15.7 | Skin metastasis |
| | | 2.15.8 | Spinal cord compression |
| | | 2.15.9 | Superior vena cava obstruction |
| | | 2.15.10 | Visceral metastasis |

Radiation Therapy Appendix 3: Non-Malignant and Benign Conditions

This Appendix lists the sites and modalities with respect to treatment principles and delivery, as referred to in competencies E.1. (1-10), E.3.6, E.4.2, E.4.5 and E.5.8

| | Condition |
|-----|----------------------------------|
| 3.1 | Acoustic neuroma |
| 3.2 | Brain arteriovenous malformation |
| 3.3 | Graves' disease |
| 3.4 | Heterotopic bone formation |
| 3.5 | Keloid scars |
| 3.6 | Pituitary adenoma |

Radiation Therapy Appendix 4: Clinical Oncology

This Appendix lists the basic concepts of clinical oncology referred to in competencies E.4.1 and E.4.2

| | Concept |
|------|--|
| 4.1 | Clinical presentation |
| 4.2 | Diagnostic methods |
| 4.3 | Emerging technologies in treatment |
| 4.4 | Epidemiology |
| 4.5 | Etiology |
| 4.6 | Gross and cross-sectional anatomy and physiology |
| 4.7 | Natural history |
| 4.8 | Predicted results based on stage and grade |
| 4.9 | Predicted results based on treatment modalities |
| 4.10 | Prognostic indicators |
| 4.11 | Routes of spread |
| 4.12 | Screening and prevention strategy |
| 4.13 | Treatment with combined modalities |
| 4.14 | Treatment with radiation therapy |
| 4.15 | Treatment with surgery |
| 4.16 | Treatment with systemic therapy |
| 4.17 | Types of pathology and staging |

The *Medical Diagnostic and Therapeutic Technologists Profession Regulation* (the Regulation) outlines the restricted activities for members.

Medical Diagnostic and Therapeutic Technologists Profession Regulation: <u>acmdtt.com/regulation</u>*

The following passage from the Regulation (Sections 14 through 21) outlines restricted activities and defines enhances practice for medical diagnostic and therapeutic technologists.

Restricted Activities

Radiological technologists

14(1) A regulated member who is registered in the radiological technologist general register or the radiological technologist temporary register category of the regulated members register is authorized to perform in accordance with the standards of practice the following restricted activities:

- (a) apply any form of ionizing radiation in conjunction with medical radiography;
- (b) apply non-ionizing radiation in lithotripsy;
- (c) administer diagnostic imaging contrast agents for the purpose of conducting diagnostic scans and imaging of body tissue;
- (d) insert or remove instruments, devices or fingers
 - (i) beyond the opening of the urethra,
 - (ii) beyond the anal verge, and
 - (iii) into an artificial opening in the body for the purpose of administering diagnostic examinations in medical radiography.

(2) A person referred to in subsection (1) who has completed advanced training approved by the Council and who has received notification from the Registrar that the authorization is indicated on the appropriate category of the regulated members register may perform in accordance with the standards of practice the following restricted activities:

- (a) to cut a body tissue or to perform other invasive procedures on body tissue below the dermis for the purpose of starting an intravenous line;
- (b) to apply non-ionizing radiation for the purpose of ultrasound imaging.

AR 61/2005 s14;113/2009

Nuclear medicine technologists

15(1) A regulated member who is registered in the nuclear medicine technologist general register or the nuclear medicine technologist temporary register category of the regulated members register is authorized to perform in accordance with the standards of practice the following restricted activities:

- (a) apply any form of ionizing radiation in conjunction with nuclear medicine;
- (b) compound or administer blood or blood products to perform autologous procedures;
- (c) administer radiopharmaceuticals, radiolabelled substances, radioactive gases or radioaerosols for diagnostic and therapeutic purposes;
- (d) cut a body tissue, or administer anything by an invasive procedure on body tissue below the dermis, for the purpose of administering injections or for starting an intravenous line;
- (e) insert or remove instruments or devices beyond the opening of the urethra for the purpose of administering diagnostic examinations in nuclear medicine.

(2) A person referred to in subsection (1) who has completed advanced training approved by the Council and who has received notification from the Registrar that the authorization is indicated on the appropriate category of the regulated members register may, in accordance with the standards of practice, apply non-ionizing radiation for the purpose of ultrasound imaging.

AR 61/2005 s15;113/2009

Radiation therapists

16(1) A regulated member who is registered in the radiation therapist general register or the radiation therapist temporary register category of the regulated members register is authorized to perform in accordance with the standards of practice the following restricted activities:

- (a) apply any form of ionizing radiation in conjunction with radiation therapy;
- (b) administer diagnostic imaging contrast agents for the purpose of conducting diagnostic scans and imaging of body tissue;
- (c) insert or remove instruments, devices, hands or fingers
 - (i) beyond the cartilaginous portion of the ear canal,
 - (ii) beyond the pharynx,
 - (iii) beyond the opening of the urethra,
 - (iv) beyond the labia majora,
 - (v) beyond the anal verge, and
 - (vi) into an artificial opening in the body

for the purpose of radiation treatment.

(2) A person referred to in subsection (1) who has completed advanced training approved by the Council and who has received notification from the Registrar that the authorization is indicated on the appropriate category of the regulated members register may perform in accordance with the standards of practice the following restricted activities:

- (a) to cut a body tissue or to perform other invasive procedures on body tissue below the dermis for the purpose of starting an intravenous line;
- (b) to apply non-ionizing radiation for the purpose of ultrasound imaging.

AR 61/2005 s16;113/2009

Magnetic resonance technologists

17(1) A regulated member who is registered in the magnetic resonance technologist general register or the magnetic resonance technologist temporary register category of the regulated members register is authorized to perform in accordance with the standards of practice the following restricted activities:

- (a) apply non-ionizing radiation in conjunction with magnetic resonance imaging;
- (b) administer diagnostic imaging contrast agents for the purpose of conducting diagnostic scans and imaging of body tissue;
- (c) insert or remove instruments or devices beyond the opening of the urethra or beyond the anal verge for the purposes of conducting diagnostic scans and imaging of body tissue.

(2) A person referred to in subsection (1) who has completed advanced training approved by the Council and who has received notification from the Registrar that the authorization is indicated on the appropriate category of the regulated members register may perform in accordance with the standards of practice the following restricted activities:

- (a) to cut a body tissue or to perform other invasive procedures on body tissue below the dermis for the purpose of starting an intravenous line;
- (b) to apply non-ionizing radiation for the purpose of ultrasound imaging.

Electroneurophysiology technologists

18 If a regulated member who is registered in the electroneurophysiology technologist general register or the electroneurophysiology technologist temporary register category of the regulated members register

- (a) has provided evidence satisfactory to the Registrar of having successfully completed the requirements approved by the Council to perform the restricted activity described in this section, and
- (b) has received notification from the Registrar that the authorization is indicated on the appropriate category of the regulated members register,

the regulated member may perform in accordance with the standards of practice the restricted activity of cutting a body tissue or administering anything by an invasive procedure on body tissue for the purpose of using needle electrodes.

AR 61/2005 s18;113/2009

Enhanced practice

19(1) A regulated member who is registered in

- (a) one of the medical radiation technologist general register categories of the regulated members register listed in section 2(a),
- (b) the medical radiation technologist courtesy register listed in section 2(c),
- (c) the electroneurophysiology technologist general register category of the regulated members register listed in section 2(d), or
- (d) the electroneurophysiology technologist courtesy register category of the regulated members register listed in section 2(f)

may perform a restricted activity that is not authorized in respect of that regulated member's area of practice but only if

- (e) the restricted activity is one that is authorized to be performed by another regulated member who is registered in another area of practice under this Regulation,
- (f) the regulated member has completed the advanced training approved by the Council, and
- (g) the regulated member has received notification from the Registrar that the authorization is indicated on the appropriate category of the regulated members register.

(2) The Registrar may impose any conditions in accordance with policies and standards set by the Council on a regulated member referred to in subsection (1).

AR 61/2005 s19;113/2009

Duty of regulated members

20 Despite sections 14 to 19, regulated members must restrict themselves to performing only those restricted activities that they are competent to perform and that are appropriate to their areas of practice and the procedures being performed.

Students, supervision

21(1) A student who is enrolled in an approved medical radiation technology program or an electroneurophysiology technology program satisfactory to the Council or who is enrolled in a combined laboratory and x-ray sciences program approved by the council of the Alberta College of Combined Laboratory and X-ray Technologists is permitted to perform restricted activities referred to in sections 14 to 18 as part of a clinical practicum with the consent of and under the supervision of a regulated member who is registered on the electroneurophysiology technologist general or courtesy register or the medical radiation technologist general or courtesy register.

(2) The supervising member must

- (a) be authorized to perform the restricted activity in respect of which the member is providing supervision, and
- (b) be physically present and available to assist the student with performing the restricted activity as needed.

AR 61/2005 s21;113/2009

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Appendix 8: Code of Ethics

Code of Ethics: <u>acmdtt.com/coe</u>*



Code of Ethics Adopted April 16, 2015



*Please note that all URLs provided in this document will redirect to the most up-to-date documents.

Code of Ethics

This Code of Ethics represents the profession's vision of practice in the interest of the public. It serves to inspire members to uphold the integrity of the profession and the trust of the public. Regulated members of the profession use this Code of Ethics in conjunction with the Standards of Practice, regulatory requirements and workplace policies to guide their ethical considerations and decision making.

The fundamental responsibility of diagnostic and therapeutic professionals is to manage the prescribed diagnostic and therapeutic services for patients in an effort to improve patients' health. Further, members have professional obligations to work collaboratively with colleagues and other healthcare professionals to advance the art and science of the services the profession as a whole provides.

Ethical Principles

Principle 1 – Responsibility to the public

a. Competent care

A regulated member's primary responsibility is to provide competent service to patients with respect to their individual needs and overall welfare.

b. Diversity

A regulated member provides patient care and service with respect for human rights, regardless of, but not limited to, race, ethnicity, religion, language, sexual orientation, age and socioeconomic status, mental or physical abilities.

c. Dignity

A regulated member provides care with full regard for the autonomy and dignity of all persons.

d. Confidentiality

A regulated member respects patients' rights to privacy and confidentiality of personal and health information within the boundaries of the law.

e. Collaboration

A regulated member consults with colleagues and other professionals in order to facilitate timely, appropriate, safe and consistent practice and to contribute toward a healthy and positive work environment.

f. Informed consent

A regulated member ensures that informed consent for the procedure is obtained and recognizes the patients' right to accept or refuse medical services.

g. Professional judgement

A regulated member exhibits sound judgment in ensuring that procedures performed are medically appropriate and requested by an appropriately-authorized healthcare provider using consultation as required.

h. Professional boundaries

A regulated member makes every effort to avoid or remediate relationships that could impair, or perceive to impair, their professional judgment as it relates to patient care and services.

i. Record management

A regulated member accesses health records only when appropriate to their professional practice and protects this information from unauthorized access and disclosure.

Principle 2 – Responsibility to the profession

a. Personal responsibility

A regulated member assumes personal responsibility for their professional decisions and the impact of those decisions on the quality of their practice.

b. Honesty

A regulated member demonstrates honesty and truthfulness in their professional relationships with colleagues, patients and patient representatives.

c. Boundaries of competence

A regulated member limits their practice to those techniques and procedures which the member is competent and currently authorized to perform by virtue of education and experience and is consistent with the College's standards.

d. Duty to report

A regulated member takes appropriate action in responding to situations which jeopardize the care of patients or bring harm to the profession.

e. Conflict of interest

A regulated member recognizes, discloses and takes appropriate action in regards to conflicts of interest that arise in the course of professional activities.

f. Advancing the profession

A regulated member advances the profession through the development and sharing of new and emerging professional knowledge.

g. Integrity and respect

A regulated member displays integrity and respect in all interactions with other healthcare professionals.

h. Legislative requirements

A regulated member recognizes that the self-regulation of the profession is a privilege and abides by the legislated parameters and obligations of being a member of the College.

i. Professional communication

A regulated member adheres to principles of professionalism in communication (i.e., verbal, written, social media).

Principle 3 – Responsibility to oneself

a. Personal conduct

A regulated member maintains a level of personal conduct that upholds the integrity of the profession and the trust of the public.

b. Accountability

A regulated member takes responsibility and is accountable for their professional activities.

c. Personal capacity

A regulated member makes every effort to maintain the required mental and physical wellness while recognizing and identifying any limitations that may prevent them from meeting the responsibilities of their professional role such that they may practice safely, competently and without impairment.



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Standards of Practice: <u>acmdtt.com/sop</u>*

Alberta College of Medical Diagnostic & Therapeutic Technologists

Standards of Practice

September 1, 2019

(Standards of Practice dated July 5, 2014 is repealed)

Alberta College of Medical Diagnostic & Therapeutic Technologists

The Alberta College of Medical Diagnostic and Therapeutic Technologists exists so that the public is assured of receiving safe, competent and ethical diagnostic and therapeutic care by a regulated and continually advancing profession.

*Please note that all URLs provided in this document will redirect to the most up-to-date documents.

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Introduction

Background

The Alberta College of Medical Diagnostic and Therapeutic Technologists (**ACMDTT**¹, or "the College") is the regulatory body in Alberta for medical diagnostic and therapeutic technologists.

This collective is composed of five distinct specialties within two distinct professional groups called medical radiation technologists and electroneurophysiology technologists.

The five specialties consist of radiological technologists, nuclear medicine technologists, magnetic resonance technologists, radiation therapists, and electroneurophysiology technologists.

These professional groups are legislated by the *Health Professions Act* (HPA) and, in accordance with Section 133 of the HPA, the College has developed Standards of Practice (Standards) to guide professional practice.

The Standards represent the expected minimum level of performance for members and reflect delivery of safe, competent and ethical care to patients.

These Standards are mandatory for all members of the College across all contexts of professional practice. The HPA and the *Medical Diagnostic and Therapeutic Technologists Profession Regulation* (the Regulation) govern the practice of the profession.

Schedule 12(3)(1) of the HPA sets out the practice statement for the profession of medical diagnostic and therapeutic technologists as follows:

3(1) In their practice, medical diagnostic and therapeutic technologists do one or more of the following:

- (a) apply ionizing radiation, non-ionizing radiation and other forms of energy to produce diagnostic images,
- (b) evaluate the technical sufficiency of the images,
- (c) use ionizing radiation, non-ionizing radiation and other forms of energy for treatment purposes,

- (d) teach, manage and conduct research in the science, techniques and practice of medical diagnostic and therapeutic technology,
 - (d.1) assess the medical condition and needs of patients before, during and after the procedure described in clause (a)
- (e) provide restricted activities authorized by the regulations.

Schedule 12(3)(2) of the HPA sets out the practice statement for the profession of, electroneurophysiology technologists as follows:

(2) In their professional practice, electroneurophysiology technologists do one or more of the following:

- (a) use sensitive electronic equipment to record and evaluate the electrical activity of patients' central and peripheral nervous systems to assist physicians, surgeons and other health professionals in diagnosing diseases, injuries and abnormalities;
 - (a.01) evaluate the technical sufficiency of the recordings made under clause (a);
 - (a.02) assess the medical condition and needs of patients before, during and after the procedure described in clause (a);
- (a.1) teach, manage and conduct research in the science, techniques and practice of electroneurophysiology;
- (b) provide restricted activities authorized by the regulations.

Schedule 7.1 of the *Government Organization Act* and sections (14), (15), (16), (17) and (18) of the Regulation sets out restricted activities for the practice of medical radiation technology and electroneurophysiology technology.

The process used to develop the Standards is described in Appendix A.

¹ A glossary of key terms used in the Standards is included at the end of the document. Words or terms that are included in the Glossary are identified in the document by **bold text** the first time they appear in each Standard.
Introduction (continued)

Purpose of the Standards of Practice

The Standards serve a variety of purposes for stakeholders both internal and external to the professions of medical radiation technology and electroneurophysiology technology such as:

- The College uses the Standards to outline standards/expectations for evaluation of the quality of professional practice and inform processes to review professional practice and conduct of regulated members.
- Educators use the Standards in the design of education programs and practice assessments, in conjunction with entry-to-practice competency statements.
- Managers/employers use the Standards to guide the development of job descriptions/roles and performance evaluation.
- Other health professionals use the Standards to learn about the roles of those regulated by the College and enhance collaborative practice.
- Regulated members use the Standards to provide guidance for exemplary practice and a framework for patient care, to enhance the culture of professionalism, to provide the basis for self-monitoring processes and to facilitate continued learning initiatives.
- Members of the public use the Standards to learn about what patients can expect when receiving services.

How the Standards of Practice are organized

The Standards of Practice are organized under five broad standard areas, including:

Standard Area 1: Provision of Patient Care/Services

Standard Area 2: Professional Accountability

Standard Area 3: Professional Roles

Standard Area 4: Practice Management

Standard Area 5: Protection of Patients from Sexual Abuse and Sexual Misconduct

Each broad standard area includes several standards that are described using the following headings:

- Standard Statement: describes the legal and professional expected level of performance by a member.
- Indicators: describe the application of the standards by a member, and can also be used to determine if the standards are being achieved. The indicators are not all-inclusive, nor are they listed in order of importance. Both general indicators (those that are applicable to all members) and specific indicators (those that apply to one or more of the specialties) are provided.
- Expected Outcomes: describe the outcomes that patients, family/representatives, the public and employers may expect when a member provides services.
- Related Standards: refer to other standards that provide additional and/or related information.
- Resources: includes a list of documents that provide additional information related to the Standards.
- Glossary: provides definition for words in boldface in the Standards of Practice. Words or terms that are included in the Glossary are identified in the document by **bold text** the first time they appear in each Standard.

Assumptions

The Standards are based on the following assumptions:

- All regulated members are expected to be safe, competent, ethical, accountable and professional.
- All regulated members will only practice where they have the necessary knowledge, skills and judgment, as well as the requisite education to deliver diagnostic and therapeutic services.
- The Standards are applicable to all College members regardless of practice area or setting.
- The Standards are part of a continuum of standards and should be used in conjunction with related College documents such as:
 - Code of Ethics² or
 - Competency Profile ^{3,4,5,6,7}

for each specialty.

² ACMDTT. (2015). *Code of Ethics for Alberta Diagnostic and Therapeutic Professionals*. Edmonton: Author. Available at: https://acmdtt.com/

³ ACMDTT. (2016). Competency Profile Electroencephalography. Edmonton: Author. Available at: https://acmdtt.com

⁴ Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Magnetic Resonance Technology*. Ottawa: Author. Available at: http://www.camrt.ca

⁵ Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Nuclear Medicine Technology*. Ottawa: Author. Available at: http://www.camrt.ca

⁶ Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiological Technology*. Ottawa: Author. Available at: http://www.camrt.ca

⁷ Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiation Therapy*. Ottawa: Author. Available at: http://www.camrt.ca

Standard Area 1: Provision of Patient Care/Services

Standard 1.1 Patient-Centred Care

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists provides **patient-centred care** that is safe, competent and ethical. The member provides the patient's care with integrity and compassion and adheres to the member's inherent legal responsibilities (e.g., *Health Professions Act, Medical Diagnostic and Therapeutic Technologists Profession Regulation*).

Indicators

To demonstrate this Standard, a regulated member will:

- a. Take steps to put the patient at ease and establish rapport (e.g., introduce oneself, state profession and role).
- b. Assess the patient's level of understanding of the procedure and adapt communication and assessment accordingly.
- c. Clearly explain the procedure and possible implications to the patient.
- d. Ensure appropriate **informed consent** for the procedure has been obtained (e.g., explain procedure and possible implications, recognize the patient's right to accept or refuse medical services).
- e. Be aware of the individual needs of patients, patients' expressed wishes and adapt approach, if appropriate, within the limitations of the procedure (e.g., consider the patient's cultural, physical, emotional and cognitive needs).
- f. Perform procedure in a manner that maintains the patient's dignity.
- g. Provide the opportunity, where appropriate, to have a third party in attendance for specific procedures.
- h. Advise the patient of any preparation for the procedure and/or post-procedural care (e.g., transfer of care, release of the patient, follow-up), when applicable.

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to consider patients' individual needs during delivery of care and to provide sufficient information to ensure appropriate consent is obtained.

- 1.2 Clinical Procedures
- 2.1 Legislation, Standards and Ethics
- 2.4 Professional Boundaries
- 2.5 Privacy/Confidentiality
- 2.6 Communication
- 4.1 Record Keeping and Information Management

Resources

Alberta Health Services. (2011). *Consent to Treatment/Procedure Policy.* Edmonton: Author. Available at: http://www.albertahealthservices.ca

Government of Alberta. (2000). Health Information Act. Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/h07.pdf

Government of Alberta. (2000). Health Professions Act. Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/h07.pdf

Government of Alberta. (2009). Alberta Regulation 61/2005 Health Professions Act - Medical Diagnostic and Therapeutic Technologists Profession Regulation. Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/Regs/2005_061.pdf

Government of Alberta. (2010). A Guide to Understanding the Protection for Persons in Care Act. Edmonton: Author. Available at: https://open.alberta.ca/publications/9781460141045#summary

Standard 1.2 Clinical Procedures

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists employs clinical procedures in a safe, competent and ethical manner.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Take actions to prepare for the procedure (e.g., verify procedure ordered, ensure procedure requisition/ prescription contains required patient information, verify correct patient/anatomical location).
- b. Obtain relevant patient history.
- c. Ensure the patient has been assessed for contraindications to the procedure and respond appropriately (e.g., allergies, medications, conflicting treatments/examinations, medical condition, implants/devices or other items).
- d. Clearly explain the procedure and obtain appropriate informed consent.
- e. Possess the necessary competence to perform the procedure safely and ethically.
- f. Follow relevant federal and provincial regulations, professional guidelines and employer/organization policies and procedures.⁸
- g. Ensure patient safety (e.g., transfers, physical environment).
- h. Support patient comfort, as appropriate, while performing procedures (e.g., position the patient, utilize positioning aids and immobilization devices).
- i. Assess and monitor the patient during the procedure (e.g., watch for adverse reactions, sudden changes in patient status or condition) and take appropriate action, when required (e.g., provide direct assistance, call for emergency assistance).
- j. Select appropriate equipment and parameters considering the individual patient (e.g., imaging, data acquisition, treatment, optimum settings, transducers, settings, coils).
- k. Appropriately identify anatomical orientation on imaging/recordings (e.g., utilize radio-opaque markers, utilize annotation, differentiate patient positioning such as left/right).

⁸ Note: If the College's Standards are more restrictive than related policies and procedures of the organization/employer, the member is expected adhere to the College's expectations.

Standard Area 1 (continued)

- I. Optimize, capture and archive information (e.g., images, recordings).
- m. Identify and communicate with the appropriate healthcare provider any procedural concerns or patient's expressed wishes (e.g., appropriateness of or modifications to the procedure, patient's gender expression).
- n. Modify procedure based on evidence from previous data, images and reports.
- o. Assess results (e.g., images, data sets, recordings) for acceptability and completeness.

In addition, regulated members in the specialty of nuclear medicine technology will:

- p. Ensure that radioactive materials utilized meet appropriate standards for safety as well as manufacturing (e.g., acceptable radiopharmaceutical quality control, appropriate shielding).
- q. Prepare radiopharmaceuticals according to manufacturers' specifications.
- r. Dispense and administer radiopharmaceutical preparations as per employer/organization policies and guidelines and physician orders (e.g., procedural requisition and facility protocol).
- s. Ensure appropriate measures are in place and followed to safely prepare blood products as radiopharmaceuticals.

In addition, regulated members in the specialties of nuclear medicine technology and radiological technology will:

- t. Utilize shielding in accordance with radiation protection principles without compromising the exam (e.g., determine location of radiosensitive tissues/reproductive organs).
- u. Collimate and direct the x-ray beam to the area of interest to produce images that demonstrate only the required anatomy and/or pathologies that is/are of diagnostic interest.
- v. Expose the patient to the lowest practicable amount of radiation, consistent with clinical objectives and without loss of essential diagnostic information.

In addition, a regulated member in the specialty of radiation therapy will:

- w. Modify treatment, as required, based on image guidance.
- In addition, regulated members in the specialty of electroneurophysiology technology will:
- x. Modify/adapt recording and/or procedure based on physical, clinical or electrographic observations.

In addition, regulated members in the specialty of electroneurophysiology technology will:

y. Communicate technical impressions of examinations to the most appropriate healthcare provider.

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to have the necessary competence to perform the clinical procedures, safely, competently and ethically.

Related Standards

1.1 Patient-Centred Care

- 2.1 Legislation, Standards and Ethics
- 2.2 Professional Competence
- 2.4 Professional Boundaries
- 2.6 Communication
- 3.1 Collaboration/Professional Relationships
- 3.3 Evidence-Informed Practice
- 4.1 Record Keeping and Information Management
- 4.2 Safe Practice

Resources

ACMDTT. (2016). Competency Profile Electroencephalography. Edmonton: Author. Available at: https://acmdtt.com

ACMDTT. (2015). Code of Ethics. Edmonton: Author. Available at: https://acmdtt.com

ACMDTT. Additional and Enhanced Authorizations Edmonton: Author. Available at: https://acmdtt.com

American Society of Radiologic Technologists. (2012). *Best Practices in Digital Radiography.* Albuquerque: Author. Available at: http://www.asrt.org/docs/whitepapers/asrt12_bstpracdigradwhp_final.pdf

Canadian Association of Electroneurophysiology Technologists. (2016). *National Technical Standards.* Ottawa: Author. Available at: https://www.caet.org/

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Magnetic Resonance Technology*. Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Nuclear Medicine Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiological Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiation Therapy.* Ottawa: Author. Available at: http://www.camrt.ca

Cardiac Care Network. (2017). *Standards for the Provision of Electrocardiography (ECG)-Based Diagnostic Testing in Ontario.* Toronto: Author. Available at: https://www.corhealthontario.ca/resources-for-healthcare-planners-&-providers/ecg/ECG-Standards-Document-FINAL.pdf

Government of Alberta. (2000). Health Information Act. Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/h07.pdf

Government of Alberta. (2009). Alberta Regulation 61/2005 Health Professions Act - Medical Diagnostic and Therapeutic Technologists Professional Regulation. Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/Regs/2005_061.pdf

Health Canada. (2008). *Safety Code 35: Radiation Protection in Radiology – Large Facilities.* Ottawa: Author. Available at: https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/radiation/safety-code_35-securite/s

Standard Area 2:

Professional Accountability

Standard 2.1: Legislation, Standards and Ethics

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists adheres to the legislative requirements governing the practice of the member's specialty, the College's Code of Ethics and Standards of Practice.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Assume personal responsibility for the quality and competence of the member's practice.
- b. Maintain and apply the knowledge, skills, judgments and behaviours necessary for safe, competent and ethical practice.
- c. Perform restricted activities only as authorized by the College.
- d. Protect patient confidentiality within policy and legislated parameters.
- e. Recognize, avoid and/or manage real or perceived conflict of interest situations.
- f. Report abuse, incapacity or unprofessional activity in the work environment.
- g. Adhere to legal obligations required by the College (e.g., use of protected title, mandatory registration requirements, professional liability insurance).
- h. Engage in conduct that does not harm the integrity of the member's profession.
- i. Ensure that information provided by the member about services offered is accurate and verifiable.
- j. Be accurate and transparent in interactions related to patient billing (e.g., accurately report procedures performed).

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to provide services in compliance with applicable legislation, regulations and professional requirements.

- 1.2 Clinical Procedures
- 2.2 Professional Competence
- 2.3 Restricted Activities/Enhanced Practice
- 2.4 Professional Boundaries
- 2.5 Privacy/Confidentiality
- 3.3 Evidence-Informed Practice
- 4.2 Safe Practice

Resources

ACMDTT. (2015). Code of Ethics. Edmonton: Author. Available at: https://acmdtt.com

ACMDTT. Additional and Enhanced Authorizations. Edmonton: Author. Available at: https://acmdtt.com

Government of Alberta. (2000). *Health Information Act.* Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/h07.pdf Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/h07.pdf

Government of Alberta. (2009). *Alberta Regulation 61/2005 Health Professions Act - Medical Diagnostic and Therapeutic Technologists Profession Regulation.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/Regs/2005_061.pdf

Standard 2.2: Professional Competence

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists limits their professional practice to those techniques and procedures that the member is competent to perform, and which are consistent with the College's Standards. The member is responsible for life-long learning to maintain **competence** in their practice.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Possess the competencies set out in all competency profiles that are applicable to the member's areas of practice.
- b. Practice within the limits of the member's competence.
- c. Maintain knowledge of current and evolving technologies and integrate new learning into practice, as appropriate.
- d. Use self-reflection and develop performance goals to enhance professional competence.
- e. Undertake continuing professional development.
- f. Comply with all of the requirements of the College's Continuing Competence Program.

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to possess the necessary competence for safe and ethical service delivery.

- 1.2 Clinical Procedures
- 2.1 Legislation, Standards and Ethics
- 2.3 Restricted Activities/Enhanced Practice
- 3.3 Evidence-Informed Practice
- 4.2 Safe Practice

Standard Area 2 (continued)

Resources

ACMDTT. (2016). Competency Profile Electroencephalography. Edmonton: Author. Available at: https://acmdtt.com/

ACMDTT. (2019) Continuing Competence Program Information Guide. Edmonton: Author. Available at: https://acmdtt.com/

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Magnetic Resonance Technology*. Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Nuclear Medicine Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiological Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiation Therapy.* Ottawa: Author. Available at: http://www.camrt.ca

Standard 2.3 Restricted Activities/Enhanced Practice

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists limits the practice of **restricted activities** to those that are appropriate for the member's areas of practice and for which competence and authorization have been determined, as outlined in the College regulations. To seek additional and **enhanced practice** authorizations, a regulated member is required to complete College-approved advanced training and to obtain authorization from the College.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Perform only those restricted activities for which they have the required competence and current authorization.
- b. Assess the benefits and risks associated with performing the restricted activity and ensure that a decision is appropriately undertaken on whether or not to perform the restricted activity.
- c. Be responsible and accountable for safely performing the restricted activity.
- d. Understand the risks associated with performing the restricted activity and ensure that measures are in place to manage any critical or unexpected events associated with performing it.

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to perform restricted activities safely, competently and ethically.

- 2.1 Legislation, Standards and Ethics
- 2.2 Professional Competence
- 4.2 Safe Practice

Resources

ACMDTT. Additional and Enhanced Authorizations. Edmonton: Author. Available at: https://acmdtt.com

Government of Alberta. (2000). Health Professions Act. Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/h07.pdf

Government of Alberta. (2005). Alberta Regulation 61/2005 Health Professions Act - Medical Diagnostic and Therapeutic Technologists Profession Regulation. Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/Regs/2005_061.pdf

Standard 2.4: Professional Boundaries

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists maintains clear **professional boundaries** in relationships with patients, families and **colleagues**.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Adhere to the Code of Ethics of the College.
- b. Explain to the patient the need for removing clothing and other items that may interfere with diagnostic or therapeutic procedures.
- c. Provide the opportunity, where appropriate, of having a third party in attendance for specific procedures.
- d. Ensure **informed consent** is obtained when required to touch the patient for diagnostic and/or therapeutic purposes.
- e. Ensure that patients, families or colleagues do not infringe upon the member's personal boundaries.
- f. Utilize the member's position to establish only appropriate professional relationships with a patient, their family or a colleague.
- g. Avoid expression of views or information to the patient, which is not related to the professional relationship (e.g., includes interactions through **social media**).

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to maintain appropriate professional boundaries.

Related Standards

- 1.1 Patient-Centred Care
- 1.2 Clinical Procedures
- 2.1 Legislation, Standards and Ethics
- 2.6 Communication

Resources

ACMDTT. (2016). Code of Ethics. Edmonton: Author. Available at: https://acmdtt.com

Standard Area 2 (continued)

Standard 2.5: Privacy/Confidentiality

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists respects patients' rights to privacy and maintains confidentiality of patients' personal information within the boundaries of the law.⁹

Indicators

To demonstrate this Standard, a regulated member will:

- a. Comply with applicable privacy legislation and employer/organization policies and procedures relating to confidentiality of patient information.
- b. Respond to the questions and concerns of a patient's family/representatives within the parameters of patient confidentiality.
- c. Ensure privacy and confidentiality during discussions and provision of services.
- d. Utilize information and archival systems, only as required, for the provision of services specific to the patients who are under the direct care of the member or for other authorized activities (e.g., teaching, research, training).

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to maintain privacy and confidentiality of the patients' personal information in accordance with ethical and legal requirements.

Related Standards

- 1.1 Patient-Centred Care
- 2.1 Legislation, Standards and Ethics
- 2.6 Communication
- 4.1 Record Keeping and Information Management

Resources

ACMDTT. (2015). Code of Ethics. Edmonton: Author. Available at: https://acmdtt.com

Government of Alberta. (2000). *Health Information Act.* Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/h07.pdf Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/h07.pdf Government of Alberta. (2009). *Alberta Regulation 61/2005 Health Professions Act - Medical Diagnostic and Therapeutic*

Technologists Profession Regulation. Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/Regs/2005_061.pdf

⁹ For example, Alberta Health Information Act, Personal Information Protection Act (PIPA).

Standard 2.6: Communication

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists communicates effectively to ensure safe, competent and ethical service delivery.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Utilize appropriate strategies to communicate with intended audiences (e.g., use verbal and non-verbal, written communication, plain language or an interpreter when available).
- b. Provide the patient and/or family/representatives opportunities to ask questions and to respond within the parameters of patient confidentiality and scope of practice.
- c. Adhere to principles of professionalism regardless of the type of communication (e.g., verbal, non-verbal, written, electronic text, e-mail or social media).
- d. Provide effective communication in adherence to the College's Code of Ethics and employer/organization policies.

In addition, regulated members in the specialty of electroneurophysiology technology will:

e. Communicate technical impressions of examinations to the most appropriate healthcare provider.

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to communicate with them clearly, effectively and professionally.

Related Standards

- 1.1 Patient-Centred Care
- **1.2 Clinical Procedures**
- 2.5 Privacy/Confidentiality
- 3.1 Collaboration/Professional Relationships
- 4.1 Record Keeping and Information Management

Resources

ACMDTT. (2015). Code of Ethics. Edmonton: Author. Available at: https://acmdtt.com

Canadian Public Health Association. (1998). *Easy does it! Plain language and clear verbal communication training manual.* Ottawa: Author. Available at: http://en.copian.ca/library/learning/cpha/easy_does_it/easy_does_it.pdf

Canadian Medical Association. (2011). Social media and Canadian physicians – issues and rules of engagement. Ottawa: Author. Available at: http://www.cma.ca

Standard Area 3: Professional Roles

Standard 3.1: Collaboration/Professional Relationships

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists works effectively as a member of an **interprofessional team** to facilitate safe, competent and ethical service delivery, and to contribute to a positive work environment.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Exhibit professionalism as a member of an interprofessional team, serving the best interests of the patient.
- b. Respect a diversity of opinions and values.
- c. Consult with other **colleagues**, as required, to facilitate timely, appropriate, safe, competent and ethical practice.
- d. Refer questions and patient care outside of scope of practice to appropriate healthcare provider(s).
- e. Contribute to integrated health records, as required, to facilitate the coordination of patient services.

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to interact effectively and collaboratively with colleagues, as required, to ensure safe, competent and ethical service delivery.

Related Standards

- 1.1 Patient-Centred Care
- **1.2 Clinical Procedures**
- 2.1 Legislation, Standards and Ethics
- 2.4 Professional Boundaries
- 2.5 Privacy/Confidentiality
- 2.6 Communication
- 4.1 Record Keeping and Information Management

Resources

ACMDTT. (2015). Code of Ethics. Edmonton: Author. Available at: https://acmdtt.com

Canadian Interprofessional Health Collaborative. (2010). A National Interprofessional Competency Framework. Vancouver: Author. Available at: http://www.cihc.ca/files/CIHC_IPCompetencies_Feb1210.pdf

Standard 3.2: Leadership

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists demonstrates **leadership** through the sharing of professional knowledge and by supporting professional activities.

Indicators

To demonstrate this Standard, a regulated member will:

- a. a. Support and promote the profession (e.g., mentoring, interprofessional collaboration, team contribution, public education).
- b. b. Facilitate the sharing of professional knowledge with students, colleagues, patients and the public (e.g., preceptorships, presentations, journal clubs, public information sessions).
- c. c. Promote understanding of self-regulation.
- d. d. Follow College requirements related to the **supervision** of students or any regulated members required to practice under supervision.

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to engage in leadership activities that contribute to overall safe, competent and ethical service delivery.

Related Standards

2.6 Communication

- 3.1 Collaboration/Professional Relationships
- 3.3 Evidence-Informed Practice

Resources

ACMDTT. (2015). Code of Ethics. Edmonton: Author. Available at: https://acmdtt.com

ACMDTT. (2016). Competency Profile Electroencephalography. Edmonton: Author. Available at: https://acmdtt.com

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Magnetic Resonance Technology*. Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Nuclear Medicine Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiological Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiation Therapy.* Ottawa: Author. Available at: http://www.camrt.ca

Standard Area 3 (continued)

Standard 3.3 Evidence-Informed Practice

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists uses **evidenceinformed practice** to ensure safe, competent and ethical service delivery. The regulated member also supports the development of new knowledge, when possible.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Strive to use appropriate, current and evolving/emerging knowledge and skills to ensure safe, competent and ethical service delivery.
- b. Reflect on clinical practice and take necessary action, as appropriate, to ensure safe, competent and ethical service delivery.
- c. Support the development of new knowledge when possible (e.g., participating in/contributing to research activities).
- d. Support evidence-informed change initiatives, when appropriate (e.g., change of protocol, new technology).

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to provide services based on knowledge and skills that are current and appropriate.

Related Standards

- 1.1 Patient-Centred Care
- 1.2 Clinical Procedures
- 2.1 Legislation, Standards and Ethics
- 2.2 Professional Competence

Resources

ACMDTT. (2015). Code of Ethics. Edmonton: Author. Available at: https://acmdtt.com

ACMDTT. (2016). Competency Profile Electroencephalography. Edmonton: Author. Available at: https://acmdtt.com

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Magnetic Resonance Technology*. Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Nuclear Medicine Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiological Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiation Therapy*. Ottawa: Author. Available at: http://www.camrt.ca

Standard Area 4:

Practice Management

Standard 4.1 Record Keeping and Information Management

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists is responsible for contributing to accurate and complete confidential records, charts and other documentation relevant to the provision of safe, competent and ethical service delivery.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Maintain comprehensive records appropriate to service delivery and employer/organization policies (e.g., document pertinent aspects of patient care and procedures performed including adverse reactions, relevant identifiers and demographic information).
- b. Ensure records and access to records complies with applicable legislation intended to protect the privacy and confidentiality of personal information.
- c. Utilize information and archival systems (e.g., integrated health records) according to employer/organization policies and procedures (e.g., paper and electronic systems).
- d. Distribute/share patients' records, patient's expressed wishes, images and pertinent data to/with appropriate recipients, as required, in accordance with applicable legislation and employer/organization policies and procedures.

Expected Outcomes

The patient, family/representatives, the public and employers can expect that the regulated member follows processes to ensure the creation and maintenance of accurate and complete confidential records relevant to the provision of safe, competent and ethical service delivery.

Related Standards

- 1.2 Clinical Procedures
- 2.1 Legislation, Standards and Ethics
- 2.5 Privacy/Confidentiality
- 2.6 Communication
- 3.1 Collaboration/Professional Relationships

Resources

ACMDTT. (2015). Code of Ethics. Edmonton: Author. Available at: https://acmdtt.com

ACMDTT. (2016). Competency Profile Electroencephalography. Edmonton: Author. Available at: https://acmdtt.com

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Magnetic Resonance Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Standard Area 4 (continued)

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Nuclear Medicine Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiological Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiation Therapy.* Ottawa: Author. Available at: http://www.camrt.ca

Government of Alberta. (2000). Health Professions Act. Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/h07.pdf

Government of Alberta. (2009). Alberta Regulation 61/2005 Health Professions Act - Medical Diagnostic and Therapeutic Technologists Professional Regulation. Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/Regs/2005_061.pdf

Government of Alberta. (2015). *An Overview of Alberta's Electronic Health Record Information System.* Edmonton: Author. Available at: http://www.albertanetcare.ca/documents/An_Overview_of_AERHIS.pdf

Standard 4.2 Safe Practice

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists exercises **due diligence** for the safety of patients, colleagues, self and the general public when conducting procedures and providing services. The member also maintains safe work practices and effectively manages any potential risk to safety by adhering to relevant provincial and federal regulations and employer/organization policies and procedures.

Indicators

To demonstrate this Standard, a regulated member will:

- Ensure the patient has been assessed for contraindications to the procedure and respond as appropriate (e.g., allergies, medications, conflicting treatments/examinations, medical conditions, implants/devices or other items).
- b. Participate in quality improvement and **risk management** activities (e.g., job hazard assessments, training activities, appropriate management of bloodborne fluid exposures and needle stick injuries).
- c. Apply the applicable standards for the safe handling, use, storage and disposal of materials (e.g., WHMIS, nuclear safety legislation).
- d. Adhere to the standards defined in workplace health and safety legislation.
- e. Apply the appropriate infection prevention and control standards to prevent contamination of persons, equipment and environment (e.g., perform aseptic or sterile technique, isolation precautions, use and reprocessing of reusable medical devices and employ **routine practices**).
- f. Recognize an emergency situation and take appropriate action (e.g., seek help, administer first aid/basic life support).
- g. Perform procedures in a manner that maintains the integrity of patient ancillary devices and equipment.
- h. Seek clarification of orders, when required (e.g., an identified patient safety issue, radiation safety, patient suitability for procedure).
- i. Determine if the patient is pregnant and take appropriate action, as required.
- j. Take necessary measures to ensure patient safety (e.g., hearing protection, dental protection, shielding, side rails).

In addition, regulated members in the specialties of *nuclear medicine technology, radiological technology* and *radiation therapy* will:

- k. Apply the principles of *as low as reasonably achievable* (ALARA) in work practices.
- I. Implement safety practices that adhere to the standard of relevant radiation protection and/or nuclear safety legislation.
- m. Utilize personal radiation monitoring devices according to relevant legislation and employer/organization policies and procedures.
- n. Respond to questions/concerns about radiation exposure risk, as appropriate to the procedure.

In addition, regulated members in the specialty of nuclear medicine technology will:

- o. Determine if the patient is breast-feeding and take appropriate action, if required.
- In addition, regulated members in the specialties of nuclear medicine technology and radiation therapy will:
- p. Ensure radiation safety/protection for sealed and unsealed sources (e.g., post warning signs as appropriate; receive, store, handle and dispose of radioactive material according to regulations).
- q. Contain and restrict access to areas of radioactivity.

In addition, regulated members in the specialty of magnetic resonance technology will:

- r. Apply the principles of *as low as reasonably achievable* (ALARA) in work practices.
- s. Ensure magnet/magnetic field safety of patients and personnel (e.g., emergency response in the case of a quench, MR safe/MR compatible equipment, appropriate warning signage is in place).
- t. Adhere to appropriate magnetic resonance legislation.¹⁰

In addition, regulated members in the specialty of electroneurophysiology technology will:

u. Ensure electrical safety for patients (e.g., indwelling catheters, proper grounding of patients).

In addition, regulated members in the specialty of *electroneurophysiology technology* with applicable **enhanced practice** authorization will:

- v. Apply the principles of as low as reasonably achievable (ALARA) in work practices.
- w. Implement safety practices that adhere to the standard of relevant radiation protection and nuclear safety legislation.
- x. Utilize personal radiation monitoring devices according to relevant legislation and employer/organization policies and procedures.
- y. Respond to questions/concerns about radiation exposure risk, as appropriate to the procedure.
- z. Determine if the patient is pregnant and/or breast-feeding and take appropriate action.
- aa. Ensure radiation safety/protection (e.g., post warning signs as appropriate, receive, store, handle and dispose of radioactive material according to regulations).
- ab. Contain and restrict access to areas of radioactivity.

¹⁰ Health Canada. (1987). *Safety Code 26: Guidelines on Exposure to Electromagnetic Fields from Magnetic Resonance Clinical Systems.* Ottawa: Author. Available at: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/radiation/87ehd-dhm127/87ehd-dhm127-eng.pdft

Standard Area 4 (continued)

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to deliver services safely and to manage adverse events effectively to minimize the impact on the patient, the member, colleagues and the general public.

Related Standards

1.1 Patient-Centred Care

- 1.2 Clinical Procedures
- 2.1 Legislation, Standards and Ethics
- 2.6 Communication
- 4.3 Equipment Quality Control

Resources

ACMDTT. (2015). Competency Profile Electroencephalography. Edmonton: Author. Available at: https://acmdtt.com

Blood and Body Fluid Exposure. (2014). Resources for Healthcare Professionals. Edmonton: Author. Available at: http://bbfeab.ca/index.html

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Prdile Magnetic Resonance Technology*. Ottawa: Author. Available at: http://www.camrt.ca

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Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Prdile Radiological Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiation Therapy.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Department of Justice. (2000). Nuclear Safety and Control Act. Ottawa: Author. Available at: laws-lois.justice.gc.ca/eng/ acts/N-28.3/

Canadian Nuclear Safety Commission. (2000). *General Nuclear Safety and Control Regulations*. Ottawa: Author. Available at: http://nuclearsafety.gc.ca/eng/acts-and-regulations/index.cfm

Canadian Nuclear Safety Commission. (2000). *Radiation Protection Regulations.* Ottawa: Author. Available at: http://nuclearsafety.gc.ca/eng/acts-and-regulations/index.cfm

Canadian Nuclear Safety Commission. (2015). *Packaging and Transport of Nuclear Substances Regulation*. Ottawa: Author. Available at: http://laws-lois.justice.gc.ca/eng/regulations/SOR-2015-145/page-1.html

Canadian Patient Safety Institute. (2009). *Safety Competencies: Enhancing Patient Safety across the Health Professions.* Ottawa: Author. Available at: www.patientsafetyinstitute.ca

Canadian Standards Association. (2014). *Decontamination of Reusable Medical Devices.* Toronto: Author. Available at: http://shop. csa.ca/en/canada/sterilization/z3148-14/invt/27010632014

Government of Alberta. (2017). Occupational Health and Safety Act. Edmonton: Author. Available at: https://www.alberta.ca/ohs-act-regulation-code.aspx

Government of Alberta. (2000). *Radiation Protection Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/ Acts/R02.pdf

Government of Alberta. (2000). *Workers' Compensation Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/ documents/Acts/W15.pdf

Government of Alberta. (2015). *Infection Prevention and Control Strategy*. Edmonton: Author. Available at: https://open.alberta. ca/publications/9781460125687Government of Alberta. (2011). Standards for single-use medical devices: as applied to critical and semi-critical medical devices. Edmonton: Author. Available at: https://open.alberta.ca/publications/9780778582663

Government of Alberta. (2012). *Standards for cleaning, disinfection and sterilization of reusable medical devices for health care facilities and settings*. Edmonton: Author. Available at: https://open.alberta.ca/publications/9780778582649#detailed

Government of Alberta. (2009). *Occupational Health and Safety Act – Occupational Health and Safety Code Part 29 WHMIS*. Edmonton: Author. Available at: http://humanservices.alberta.ca/documents/WHS-LEG_ohsc_2009.pdf

Health Canada. (1987). *Safety Code 26: Guidelines on Exposure to Electromagnetic Fields from Magnetic Resonance Clinical Systems.* Ottawa: Author. Available at: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/radiation.pdf

Health Canada. (2008). *Safety Code 35: Radiation Protection in Radiology – Large Facilities.* Ottawa: Author. Available at: https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/radiation/safety-code_35-securite/safety-code_35-securite-eng.pdf

Standard 4.3 Equipment Quality Control

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists operates equipment for which appropriate training has been completed; verifies equipment and materials meet appropriate and applicable safety and operational standards; and follows established quality control (QC) measures.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Have the necessary knowledge, skills and judgment to operate the equipment and utilize materials for procedures.
- b. Perform or verify regular QC measures on equipment used for procedures, as per applicable legislation and employer/organization policies and procedures.
- c. Verify equipment is functioning properly before and/or during performing procedures.
- d. Respond, as appropriate, to any equipment issues so that they may be addressed in a timely fashion.
- e. Operate equipment in accordance with manufacturers' specifications.
- f. Ensure cleanliness of equipment.
- g. Regularly inspect equipment for functional and mechanical integrity.
- h. Perform basic troubleshooting and correct or report, as appropriate.
- In addition, regulated members in the specialty of nuclear medicine technology will:
- i. Perform or verify that appropriate QC has been completed on radiopharmaceutical preparations and their components (e.g., radionuclide purity, particle number).

In addition, regulated members in the specialties of nuclear medicine technology and radiation therapy will:

j. Perform or verify that appropriate QC has been completed on sealed sources.

In addition, regulated members in the specialty of electroneurophysiology technology will:

k. Perform or verify QC for leakage current.

Standard Area 4 (continued)

Expected Outcomes

Patients, family/representatives, the public and employers can expect the regulated member to operate equipment for which appropriate training has been completed and to verify equipment and materials meet safety and operational standards.

Related Standards

- 1.2 Clinical Procedures
- 2.1 Legislation, Standards and Ethics
- 2.2 Professional Competence
- 4.2 Safe Practice

Resources

ACMDTT. (2016). Competency Profile Electroencephalography. Edmonton: Author. Available at: https://acmdtt.com/

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Magnetic Resonance Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Nuclear Medicine Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiological Technology.* Ottawa: Author. Available at: http://www.camrt.ca

Canadian Association of Medical Radiation Technologists. (2014-Under Review). *Competency Profile Radiation Therapy.* Ottawa: Author. Available at: http://www.camrt.ca

Department of Justice. (2000). *Nuclear Safety and Control Act*. Ottawa: Author. Available at: laws-lois.justice.gc.ca/eng/ acts/N-28.3/

Government of Alberta. (2017). Occupational Health and Safety Act. Edmonton: Author. Available at: https://www.alberta.ca/ohs-act-regulation-code.aspx

Government of Alberta. (2000). Radiation Protection Act. Edmonton: Author. Available at: www.qp.alberta.ca/documents/Acts/R02.pdf

Standard Area 5: Protection of Patients From Sexual Abuse and Sexual Misconduct

A regulated member of the Alberta College of Medical Diagnostic and Therapeutic Technologists ensures that they will not enter into a relationship of a **sexual nature** with their **patient** and will take measures to prevent **sexual abuse** and **sexual misconduct**.

For the purposes of this standard:

- i) 'Patient' shall mean a person who has received medical diagnostic and/or therapeutic services administered by a regulated member of the College within the immediately preceding year except in the cases of an **episodic care**. A person receiving episodic care is considered a patient while they receive episodic care; however, they cease to be considered a patient upon its conclusion.
- ii) A **spouse**, **adult interdependent partner** or person with whom there is an existing personal and/or sexual relationship, is not a patient.

Indicators

To demonstrate this Standard, a regulated member will:

- a. Maintain and manage professional boundaries with patients at all times.
- b. Refrain from providing professional diagnostic and/or therapeutic services to their current or ongoing spouse, current or ongoing adult interdependent relationship partner or any other individual with whom they have a current or ongoing personal and/or sexual relationship, unless there is an emergent situation in which the regulated member is the most competent healthcare professional present to perform the required duties and/or the patient is restricted by geography, or other factors, that prevent them from receiving services from an alternate authorized healthcare professional. In addition, a regulated member providing professional diagnostic and/or therapeutic services in these circumstances is expected to take reasonable steps to transfer the individual's care to another authorized healthcare professional as soon as reasonably possible.
- c. Explain to the patient the need for removing clothing or other items that may interfere with diagnostic or therapeutic procedures.
- d. Ensure **informed consent** is obtained when required to touch the patient for diagnostic and/or therapeutic purposes.
- e. Provide the opportunity, where appropriate, of having a third party in attendance for procedures.
- f. Take measures to perform procedures in a manner that maintains the patient's dignity (e.g., providing gowns, appropriate draping, private space).
- g. Report any sexual abuse and/or sexual misconduct to the appropriate authority (e.g., **duty to report**, **self-report**).
- h. Comply with the College's Code of Ethics.

Standard Area 5 (continued)

Expected Outcomes

Patients, family/representatives, the public and employers can expect that regulated members will not engage in, and will take appropriate measures to prevent, sexual abuse and/or sexual misconduct.

Related Standards

- 1.1 Patient-Centred Care
- 2.1 Legislation, Standards and Ethics
- 2.4 Professional Boundaries
- 2.6 Communication

Resources

Government of Alberta. (2000). Health Professions Act. Edmonton: Author. Available at: http://www.qp.alberta.ca

Government of Alberta. (2002). Adult Interdependent Relationships Act. Edmonton: Author. Available at: http://www.qp.alberta. ca/documents/Acts/A04P5.pdf

College of Physicians and Surgeons of Ontario. (2001). *Physician Treatment of Self, Family Members, or Others Close to Them.* Toronto: Author. Available at: https://www.cpso.on.ca/Physicians/Policies-Guidance/Policies

Saskatchewan Association of Social Workers. (2012). *Standards of Practice for Registered Social Workers in Saskatchewan*. Regina: Author. Available at: http://sasw.in1touch.org/uploaded/web/policies/Standards-of-Practice-February-9-2012.pdf

Alberta Health Services. (2011). Consent to Treatment Procedure. Edmonton: Author. Available at www.albertahealthservices.ca

Adapted from Physiotherapy Alberta. (2017). *Therapeutic Relations Guide for Alberta Physiotherapists.* Edmonton: Author. Available at: https://www.physiotherapyalberta.ca/files/guide_therapeutic_relations.pdf

Glossary

Note: For an up-to-date list of references and resources, please consult the College's website at acmdtt.com.

ACMDTT is the acronym for the Alberta College of Medical Diagnostic and Therapeutic Technologists.

Section 3(1) of the Adult Interdependent Relationship Act says one person is **adult interdependent partner** of another if:

- a) the person has lived with the other person in a relationship of interdependence
 - i. for a continuous period of not less than 3 years, or
 - ii. of some permanence, if there is a child of the relationship by birth or adoption, or
- b) the person has entered into an adult interdependent partner agreement with another person but does not include a former adult interdependent partner.¹¹

An **adult interdependent partner relationship** is a relationship outside of marriage in which two people: share one another's lives; are emotionally committed to one another; and function as an economic and domestic unit. A person who is a spouse cannot be part of an adult interdependent relationship.¹²

¹¹ Government of Alberta. (2002). *Adult Interdependent Relationships Act.* Edmonton: Author. Available at: http://www.qp.alberta. ca/documents/Acts/A04P5.pdf

¹² Government of Alberta. (2002). *Adult Interdependent Relationships Act.* Edmonton: Author. Available at: http://www.qp.alberta. ca/documents/Acts/A04P5.pdf

ALARA is the acronym for "As Low as Reasonably Achievable," an optimization tool in radiation protection to keep dose limits as low as reasonably achievable, social and economic factors being taken into account. ALARA is not a dose limit; it is a practice that aims to keep dose levels as far as possible below regulatory limits.¹³

Ancillary devices are devices that provide necessary support to the primary activities or operation (e.g., IV pump, oxygen).¹⁴

Colleagues refer to peers, other healthcare providers (both regulated and non-regulated) and the staff of the College with whom the member interacts.

Professional **competence** is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and community being served. Competence depends on habits of mind, including attentiveness, critical curiosity, self-awareness and presence. Professional competence is developmental, impermanent and context-dependent. ¹⁵

Conflict of Interest refers to a conflict between the private interests and the professional responsibilities of a person in a position of trust.¹⁶

Decontamination is the process of removing or neutralizing contaminants that have accumulated on personnel and equipment.¹⁷

Due diligence refers to such judgment and activity as a reasonable, prudent member of the profession under the same circumstances would use.¹⁸

Duty to Report is broken into:

Reporting another regulated member

If a regulated member acting in their professional capacity (e.g., providing professional services) has reasonable grounds to believe that the conduct of another regulated member of their College or another College constitutes sexual abuse or sexual misconduct, the regulated member must report the unprofessional conduct to the Complaints Director in writing. However, if the information regarding unprofessional conduct was obtained in the course of the regulated member providing professional services to the other regulated member, a report is not required.¹⁹

Employer Reporting

An employer who has reasonable grounds to believe the conduct of a regulated member constitutes unprofessional conduct based on the behaviour that, in the employer's opinion, is sexual abuse and/or sexual misconduct must, as soon as possible, give notice of that conduct to the Complaints Director.²⁰

Enhanced practice refers to practice that requires the practitioner to perform restricted activities that are not primarily authorized for the member's area of practice in which they are registered. Members seeking this type of authorization are required to complete advanced training approved by the Council.²¹

¹³ Author. Available at: http://nuclearsafety.gc.ca/eng/resources/radiation/introduction-to-radiation/nuclear-and-radiation-glossary.cfm

²¹ ACMDTT. Additional and Enhanced Authorizations. Edmonton: Author. Available at: https://acmdtt.com

¹⁴ Oxford Dictionaries. (2013). Author. Available at: http://www.oxforddictionaries.com/us/definition/american_english/ancillary

¹⁵ Epstein, R. M., & Hundert, E. M. (2002). Defining and Assessing Professional Competence, *Journal of the American Medical Association*, 287, 226–235

¹⁶ Adapted from: Merriam-Webster Dictionaries (2017). Author. Available at: https://www.merriam-webster.com/dictionary

¹⁷ United States Department of Labor Occupational Health and Safety Administration. (2017). *Decontamination*. Washington: Author. Available at https://www.osha.gov/SLTC/hazardouswaste/training/decon.html

¹⁸ Merriam-Webster Dictionaries (2019). Author. Available at: https://www.merriam-webster.com

¹⁹ Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/ Acts/H07.pdf

²⁰ Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/ Acts/H07.pdf

Glossary (continued)

Episodic Care is a single encounter with a patient in which health services are provided where neither the regulated member nor the patient has the expectation of an ongoing care.²²

Evidence-informed practice refers to practice that is based on successful strategies that improve patient outcomes and are derived from a combination of various sources of evidence, including client (patient) perspective, research, national guidelines, policies, consensus statements, expert opinion and quality improvement data.²³

Expected outcomes describe what patients, family/representatives, the public and employers may expect when a member provides services.

Indicators describe the application of standards by a member, which can also be used to determine if the standards are being achieved.

Informed consent refers to obtaining the permission from a patient "based on reasonable disclosure of the facts, risks and alternatives, to use identified intervention procedures."²⁴ Informed consent may be expressed verbally, in writing or implied. **Implied consent** refers to consent inferred from the patient's or alternate decision maker's (if applicable) actions and surrounding circumstances.²⁵

Interprofessional team collaboration is the process of developing and maintaining effective interprofessional working relationships with learners, practitioners, patients/families and communities to enable optimal health outcomes. Elements of collaboration include respect, trust, shared decision-making and partnerships.²⁶

Leadership involves engaging with others to contribute to a vision of a high-quality healthcare system and taking responsibility for the delivery of excellent patient care through activities such as clinical service delivery, administration, scholarly activity or teaching.²⁷

A **patient** is a person who has received medical diagnostic and/or therapeutic services administered by a regulated member of the College within the immediately preceding year.

Patient-centred care is an approach in which planning, coordination and delivery of care/services are centred around the patient's unique needs and preferences. The patient participates in decision-making and their choices are respected as much as possible.²⁸

Additional and Enhanced Authorizations are developed by ACMDTT to reflect the requirements for specific Practice Areas requiring additional and enhanced practice authorizations.²⁹

²² CPSO. (2001). *Physician Treatment of Self, Family Members, or Others Close to Them*. Toronto: Author. Available at: https://www.cpso.on.ca/Physicians/Policies-Guidance/Policies/Physician-Treatment-of-Self-Family-Members-or

²³ Adapted from: College of Nurses of Ontario. (2014). *Entry to Practice Competencies*. Toronto: Author. Available at: http://www.cno.org/globalassets/docs/reg/41042_entrypracrpn.pdf

²⁴ Saskatchewan Association of Social Workers. (2012). *Standards of Practice for Registered Social Workers in Saskatchewan*. Regina: Author. Available at: http://sasw.in1touch.org/uploaded/web/policies/Standards-of-Practice-February-9-2012.pdf

²⁵ Alberta Health Services. (2011). *Consent to Treatment Procedure*. Edmonton: Author. Available at http://www.albertahealthservices.ca

²⁶ Canadian Interprofessional Health Collaborative. (2010). A National Interprofessional Competency Framework. Vancouver: Author. Available at: http://www.cihc.ca/files/CIHC_IPCompetencies_Feb1210.pdf

²⁷ Adapted from: Royal College of Physicians and Surgeons of Canada. (2015). *CanMEDS 2015 Physician Competency Framework.* Ottawa: Author. Available at: http://www.royalcollege.ca/rcsite/canmeds/framework/canmeds-role-leader-e

²⁸ Adapted from: Alberta Health Services. (2017). *Continuing Care Glossary*. Edmonton: Author. Available at: http://www.albertahealthservices.ca

²⁹ ACMDTT. Additional and Enhanced Authorizations. Edmonton: Author. Available at: https://acmdtt.com

Schedule 12(3)(1) of the HPA sets out the **Practice Statement** for the profession of medical diagnostic and therapeutic technologists as follows:³⁰

3(1) In their practice, medical diagnostic and therapeutic technologists do one or more of the following:

(a) apply ionizing radiation, non-ionizing radiation and otherforms of energy to produce diagnostic images,(b) evaluate the technical sufficiency of the images,

(c) use ionizing radiation, non-ionizing radiation and otherforms of energy for treatment purposes,

(d) teach, manage and conduct research in the science, techniques and practice of medical diagnostic and therapeutic technology,

(d.1) assess the medical condition of patients before, during and after the procedure described in (a) (e) provide restricted activities authorized by the regulations.

Schedule 12(3)(2) of the HPA sets out the practice statement for the profession of electroneurophysiology technologists as follows:

(2) In their professional practice, electroneurophysiology technologists do one or more of the following:

(a) use sensitive electronic equipment to record and evaluate the electrical activity of patients' central and peripheral nervous systems to assist physicians, surgeons and other health professionals in diagnosing diseases, injuries and abnormalities;

(a.01) evaluate the technical sufficiency of the recordings made under clause (a);

(a.02) assess the medical condition and needs of patients before, during and after the procedure described in clause (a);

(a.1) teach, manage and conduct research in the science, techniques and practice of electroneurophysiology;

(b) provide restricted activities authorized by the regulations.³⁰

Schedule 7.1 of the *Government Organization Act* and sections (14), (15), (16), (17) of the Regulation sets out restricted activities for the practice of medical radiation technology.

Professional boundaries set limits to define the parameters of a safe, diagnostic and therapeutic connection between healthcare professionals and their patients.³¹

A **Regulated member** is a healthcare professional currently registered with College and:

i. is eligible for registration as a regulated member as specified in Section 33(1)(a) of the HPA and in accordance with the Regulations³²; and

ii. pays the fees and other charges which are prescribed in the Regulations or by the Council, for licensing and membership.³³

iii. includes a previous regulated member whose last day of registration with the College is within the immediately preceding two years.³⁴

Risk management is the identification, assessment and prioritization of risks followed by economical application of resources to minimize, monitor and control the probability or impact of unfortunate events.³⁵

³⁰ Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/ Acts/H07.pdf

³¹ Adapted from Physiotherapy Alberta. (2017). *Therapeutic Relations Guide for Alberta Physiotherapists.* Edmonton: Author. Available at: https://www.physiotherapyalberta.ca/files/guide_therapeutic_relations.pdf

³² Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/ Acts/H07.pdf

³³ ACMDTT. Current ACMDTT Bylaws. Edmonton: Author. Available at: http://www.acmdtt.com

³⁴ Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at:

http://www.qp.alberta.ca/documents/Acts/H07.pdf

³⁵ Hubbard, Douglas. (2009). The Failure of Risk Management: Why It's Broken and How to Fix It. Hoboken: Wiley & Sons. p.46

Glossary (continued)

A **Restricted Activity** is a high-risk activity performed by a member, when providing a health service, which requires the member to have specific competencies, skills and authorization, by the regulations under the *Health Professions Act*, to perform the activity safely and competently.³⁶

Routine Practices are a set of infection control strategies and standards designed to provide protection to the healthcare provider from potential sources of infectious diseases. They are established to prevent the transmission of microorganisms that cause infections in healthcare settings, from patient to healthcare provider, patient to patient and healthcare provider to patient. These practices include five main components: risk management, hand hygiene, personal protective equipment, environmental and administrative controls.³⁷

Self-reflection is a personal evaluation of how an activity has impacted some aspect of the work duties, interactions with patients or colleagues or other areas of professional practice.³⁸

A regulated member must **Self-Report** to the College any finding of professional negligence to the registrar in writing, as soon as reasonably possible after the finding has been made. If a regulated member in more than one college or in another jurisdiction, and the other college and/or the other jurisdiction makes a decision of unprofessional conduct, the regulated member must report the decision and provide a copy of that decision, if any, to the College. If a regulated member has been charged or convicted of an offence under the *Criminal Code* (Canada), the regulated member must report the offence in writing to the College, as soon as reasonably possible.³⁹

Sexual abuse is defined in section 1(1) (nn.1) of the HPA as "the threatened, attempted or actual conduct of a regulated member towards a patient that is of a sexual nature and includes any of the following conduct:

- sexual intercourse between a regulated member and a patient of that regulated member;
- genital to genital, genital to anal, oral to genital, or oral to anal contact between a regulated member and a
 patient of that regulated member;
- masturbation of a regulated member by, or in the presence of, a patient of that regulated member;
- masturbation of a regulated member's patient by that regulated member;
- encouraging a regulated member's patient to masturbate in the presence of that regulated member;
- touching of a sexual nature of a patient's genitals, anus, breasts or buttocks by a regulated member."40

Sexual misconduct is defined in section 1(1) (nn.2) of the HPA as: "any incident or repeated incidents of objectionable or unwelcome conduct, behaviour or remarks of a sexual nature by a regulated member towards a patient, that a regulated member knows, or ought reasonably to know will or would cause offence or humiliation to the patient or adversely affect the patient's health and wellbeing but does not include sexual abuse."⁴¹

Sexual nature, according to section 1(1) (nn.3) of the HPA, does not include any conduct, behaviour or remarks that are appropriate to the service provided.⁴²

³⁶ Government of Alberta. (2000). *Government Organizaton Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/ documents/Acts/g10.pdf

³⁷ Canada. Canadian Centre for Occupational Health and Safety. (2013). Author: Ottawa. Available at: Routine Practices: OSH Answers

³⁸ ACMDTT. (2019). Continuing Competence Program Information Guide. Edmonton: Author. Available at: https://acmdtt.com/

³⁹ Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/ Acts/H07.pdf

⁴⁰ Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/ Acts/H07.pdf

⁴¹ Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/ Acts/H07.pdf

⁴² Government of Alberta. (2000). *Health Professions Act.* Edmonton: Author. Available at: http://www.qp.alberta.ca/documents/ Acts/H07.pdf

A Spouse a person who is legally married to another.43

A **Standard** is a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose.⁴⁴

Social Media means various forms of electronic communication through which end users are allowed to create online communities to share interests, post comments, ideas, personal messages, and other contents.⁴⁵

Supervision means that a regulated member with a permit appropriate to the area of practice shall be in the immediate area to assist/consult in the delivery of restricted activities performed by a member in the regulated or non-regulated category. The supervising regulated member is required to be physically present, remain within audible distance and to be immediately available for assistance while the regulated or non-regulated member is performing the restricted activity. Availability by electronic devices is not acceptable.⁴⁶

A **Third Party** is a person or group besides the two primarily involved in a situation (e.g., a care-giver or guard accompanying a patient, colleague, interpreter).⁴⁷

Appendix A

Development of the 2019 Standards of Practice

Steps used to develop the 2019 Standards of Practice included:

i. Establishment of an Advisory Group representing all five of the specialties and feedback on development of the draft and final Standards of Practice documents;

ii. Development of an Environmental Scan Summary that included a review of comparators Standards of Practice and other foundational materials;

iii. Development of draft Standards based on the results of the environmental scan and the Advisory Group;

- iv. Revision of draft Standards based on the Advisory Group feedback;
- v. Stakeholder validation of draft Standards using an electronic survey;
- vi. Preparation of final Standards;
- vii. Government/external stakeholder consultation and feedback;
- viii. Revision of draft Standards based Government/external stakeholder consultation and feedback;
- ix. Revision of draft Standards based on the Advisory Group feedback;
- x. Preparation of final Standards;
- xi. Council approval of document; and
- xii. Publication of final Standards of Practice document.

⁴³ Government of Alberta. (2002). *Adult Interdependent Relationships Act.* Edmonton: Author. Available at: http://www.qp.alberta. ca/documents/Acts/A04P5.pdf

⁴⁴ International Organization for Standardization. (2013). *What is a Standard?* Geneva: Author. Available at: http://www.iso.org/ iso/home/about.htm

⁴⁵ Merriam-Webster Dictionaries. (2019). Social Media: Author. Available at: https://www.merriam-webster.com

⁴⁶ ACMDTT. *Supervision*. Edmonton: Author. Available at: https://acmdtt.com

⁴⁷ Oxford Dictionaries. (2017). Third Party: Author. Available at: https://en.oxforddictionaries.com



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