

Effective for residents who enter training on or after July 1, 2024.

DEFINITION

Nuclear Medicine is the branch of medicine concerned primarily with the use of unsealed radioactive sources in the study, diagnosis, and treatment of diseases in patients of all ages.

NUCLEAR MEDICINE PRACTICE

Nuclear Medicine (NM) specialists use radiopharmaceuticals to provide imaging and non-imaging diagnostic services and therapeutic interventions for a broad range of conditions in patients of all ages. Nuclear Medicine studies and interventions are characterized by the physician integrating knowledge of radiation biology, radiopharmacy, and nuclear physics with the physiology and/or pathophysiology of the underlying condition. For imaging diagnostics, radiopharmaceuticals are administered to the patient and images are generated and manipulated using a variety of imaging modalities. These modalities include planar imaging, dynamic imaging, single photon emission computed tomography (SPECT) alone or in combination with computed tomography (CT), and positron emission tomography (PET) in combination with CT or magnetic resonance imaging (MRI). Other radiation detection devices are used for non-imaging diagnostics and bone mineral densitometry. NM specialists also use unsealed sources of radiation for therapeutic purposes.

NM specialists advise physicians regarding the selection of diagnostic studies. They perform a clinical assessment, correlate other investigations, and select the protocol to be used for the NM examination. They guide technologists in the performance of the investigation, interpret imaging and non-imaging studies, and provide a report. They participate in interprofessional rounds, contributing their expertise to discussions and decisions regarding patient care. NM specialists are consulted for therapeutic indications and interventions; for these patients, they perform a clinical assessment, develop a treatment plan, provide treatment, and assess treatment effectiveness and safety. They also provide patient management for adverse events related to the nuclear medicine investigation or treatment.

NM specialists manage the activities of the nuclear medicine department. They prioritize requests for investigations and liaise with referring physicians. They support the work of the technologists and assist in their ongoing professional development. They oversee the

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workflow of the department. They are responsible for radiation safety, including isotope generation, storage, dosage, use, and disposal, as well as the safe release of patients from the hospital and adherence to regulatory requirements. They advise their institution regarding the acquisition of new equipment and isotopes and develop new protocols for diagnosis and treatment.

The practice location of NM specialists is delineated by access to radiopharmaceuticals and imaging technologies. Some nuclear medicine studies utilize locally generated radiopharmaceuticals whereas others require isotopes from externally generated sources, with regional variability in access. This limitation means that NM specialists are primarily hospital based, in facilities and locations large enough to have an isotope generator; this includes both academic and community centres.

New isotopes and imaging modalities are expanding the indications for both diagnostic and therapeutic nuclear medicine interventions.

NUCLEAR MEDICINE COMPETENCIES

Medical Expert

Definition:

As *Medical Experts*, Nuclear Medicine specialists integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centred care. Medical Expert is the central physician Role in the CanMEDS Framework and defines the physician's clinical scope of practice.

Key and Enabling Competencies: Nuclear Medicine specialists are able to...

1. Practise medicine within their defined scope of practice and expertise

- 1.1. Demonstrate a commitment to high-quality care of their patients
- 1.2. Integrate the CanMEDS Intrinsic Roles into their practice of Nuclear Medicine
- 1.3. Apply knowledge of the clinical and biomedical sciences relevant to Nuclear Medicine
 - 1.3.1. Anatomy at all ages as applied to conventional planar, tomographic, and hybrid imaging applications and techniques
 - 1.3.2. Pathology, physiology, and pathophysiology at all ages relating to systems and conditions relevant to nuclear medicine examinations and therapies
 - 1.3.3. Physics of radionuclides, including the production of radionuclides, principles of radioactive decay, interaction with matter, and detection of radioactivity
 - 1.3.4. Physics and principles of imaging techniques, including their application for hybrid use, and principles of operation of nuclear medicine equipment
 - 1.3.4.1. Gamma cameras for planar, SPECT and SPECT/CT
 - 1.3.4.2. CT scanners

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- 1.3.4.3. PET and PET/CT scanners
- 1.3.4.4. Bone mineral densitometry (BMD) equipment
- 1.3.5. Physics and principles of other imaging techniques as relevant to Nuclear Medicine
 - 1.3.5.1. Radiography
 - 1.3.5.2. Ultrasound
 - 1.3.5.3. MRI
- 1.3.6. Physics and principles of other radiation detection instruments utilized in measurement of radioactivity and exposure
 - 1.3.6.1. Dose calibrators
 - 1.3.6.2. Gamma probes for sentinel node and other probe-guided surgery
 - 1.3.6.3. Geiger-Mueller (GM) meters
 - 1.3.6.4. Liquid scintillation counters
 - 1.3.6.5. Survey meters
 - 1.3.6.6. Thermoluminescent dosimeters and other personnel monitors
 - 1.3.6.7. Thyroid probes
 - 1.3.6.8. Well counters
- 1.3.7. Principles of quality control and testing of nuclear medicine equipment
- 1.3.8. Single photon, positron-emitting, and particle-emitting agents used for imaging and non-imaging studies and therapy
 - 1.3.8.1. Chemistry
 - 1.3.8.2. Radiopharmacy
 - 1.3.8.3. Methods of labelling
 - 1.3.8.4. Quality control
 - 1.3.8.5. Regulatory aspects of radiopharmaceuticals, including transport of dangerous goods
- 1.3.9. Radiation biology pertinent to diagnostic and therapeutic uses of radionuclides
- 1.3.10. Radiation dosimetry
- 1.3.11. Natural history, clinical manifestations, and management of conditions examined or treated by nuclear medicine techniques, including cancers of all types, and cardiac, inflammatory, and infectious conditions
 - 1.3.11.1. Diagnostic algorithms for investigation and the role of nuclear medicine imaging

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- 1.3.11.2. Principles of initial management of cardiac events and emergencies
- 1.3.12. Principles of the in vivo and in vitro use of radionuclides and radiopharmaceuticals for imaging and non-imaging studies, including single photon imaging, PET, and CT as applied in hybrid imaging
 - 1.3.12.1. Clinical indications
 - 1.3.12.2. Imaging techniques and protocols
 - 1.3.12.3. Principles of image interpretation, including normal variants and imaging pitfalls
 - 1.3.12.4. Modification of radiopharmaceutical biodistribution by patient, medication, and disease states and the effects on images and non-imaging studies
 - 1.3.12.5. Risks and benefits of nuclear imaging and non-imaging studies
- 1.3.13. Principles and practice of BMD
 - 1.3.13.1. Bone physiology
 - 1.3.13.2. Pathophysiology related to bone mineral loss
 - 1.3.13.3. Principles of fracture risk
- 1.3.14. Principles of the therapeutic use of unsealed sources of radiation
 - 1.3.14.1. Principles of administration, risks, adverse effects, and complications
 - 1.3.14.2. Clinical indications and expected outcomes
 - 1.3.14.3. Appropriate use of individual agents
 - 1.3.14.4. Management algorithms
- 1.3.15. Principles of the diagnostic and therapeutic use of novel radiopharmaceutical agents with emerging or established clinical relevance
- 1.3.16. Radiation safety, protection, and associated regulations as applied to the safe use and transportation of radioisotopes and radiopharmaceuticals, for both staff and patients, including the as low as reasonably achievable (ALARA) principle in clinical Nuclear Medicine practice
- 1.3.17. Requirements, both experimental and regulatory, for the development and utilization of novel agents
- 1.3.18. Computer applications relevant to Nuclear Medicine
 - 1.3.18.1. Computer-aided diagnosis
 - 1.3.18.2. Electronic storage and transmission of image data
 - 1.3.18.3. Image analysis
 - 1.3.18.4. Image fusion techniques

- 1.3.18.5. Image manipulation
- 1.3.18.6. Quantitative assessments

- 1.4. Perform appropriately timed diagnostic and clinical assessments with recommendations that are presented in an organized manner
- 1.5. Carry out professional duties in the face of multiple competing demands
- 1.6. Recognize and respond to the complexity, uncertainty, and ambiguity inherent in Nuclear Medicine practice

2. Perform a patient-centred clinical assessment and establish a management plan

- 2.1. Prioritize issues to be addressed in a patient encounter
 - 2.1.1. Prioritize requests for nuclear medicine examinations
- 2.2. Elicit a history, perform a physical exam, select appropriate investigations, and interpret their results for the purpose of diagnosis and management, disease prevention, and health promotion
 - 2.2.1. Gather a relevant clinical history from the patient and other sources
 - 2.2.2. Gather and interpret the clinical significance of the findings of a physical examination
 - 2.2.3. Gather and interpret prior investigations, including the results of relevant laboratory and imaging investigations
 - 2.2.4. Synthesize findings from the clinical assessment and investigations
 - 2.2.5. Assess the patient's suitability to proceed with diagnostic nuclear medicine interventions, considering patient factors that affect the choice of examination or study protocol, the dose and/or distribution of the radioactive agent, and the risk of the procedure and/or radiation exposure
 - 2.2.6. Assess the patient's eligibility for therapeutic nuclear medicine interventions, considering the indications, contraindications, therapeutic benefit, therapeutic alternatives, risks, and adverse effects
- 2.3. Establish goals of care in collaboration with patients and their families,¹ which may include slowing disease progression, treating symptoms, achieving cure, improving function, and palliation

¹ Throughout this document, references to the patient's family are intended to include all those who are personally significant to the patient and are concerned with his or her care, including, according to the patient's circumstances, family members, partners, caregivers, legal guardians, and substitute decision-makers.

- 2.4. Establish a patient-centred management plan
 - 2.4.1. Advise referring physicians on the most appropriate investigation and/or sequence of investigations, taking into account relevant patient factors, including renal function, comorbidities, and positioning limitations
 - 2.4.2. Integrate nuclear medicine investigations and therapies into patient care plans
 - 2.4.3. Use pharmacologic agents or techniques to intentionally modify radiopharmaceutical distribution or excretion
 - 2.4.4. Develop plans for therapeutic interventions using unsealed sources of radiation

3. Plan and perform procedures and therapies for the purpose of assessment and/or management

- 3.1. Determine the most appropriate procedures or therapies
 - 3.1.1. Apply diagnostic algorithms for the investigation of conditions examined by nuclear medicine techniques
 - 3.1.2. Identify patients with contraindications for use of contrast media injections
 - 3.1.3. Identify patients with contraindications to pharmacologic and exercise stress testing
- 3.2. Obtain and document informed consent, explaining the risks and benefits of, and the rationale for, a proposed procedure or therapy
- 3.3. Prioritize procedures or therapies, taking into account clinical urgency and available resources
- 3.4. Perform procedures in a skilful and safe manner, adapting to unanticipated findings or changing clinical circumstances
 - 3.4.1. Venipuncture and injections of contrast media and pharmacologic agents
 - 3.4.2. Injections for lympho-scintigraphy
 - 3.4.3. Sentinel node injection
 - 3.4.4. Injection into a shunt reservoir
- 3.5. Supervise and provide interpretation of nuclear medicine imaging and non-imaging studies
 - 3.5.1. Protocol, optimize, and troubleshoot nuclear medicine studies
 - 3.5.1.1. Advise and assist technologists in the positioning of patients
 - 3.5.1.2. Protocol nuclear medicine studies for gamma camera, SPECT/CT, PET/CT and uptake probe, in conjunction with a technologist
 - 3.5.1.3. Use other radiation detection instruments, including survey meters, GM meters, gamma probes, and dose calibrators

- 3.5.1.4. Use computer applications, including image manipulation and analysis
 - 3.5.2. Interpret in vivo non-imaging techniques
 - 3.5.2.1. Renal function
 - 3.5.2.2. Biliary salt malabsorption
 - 3.5.2.3. Thyroid uptake
 - 3.5.2.4. Carbon breath tests
 - 3.5.3. Interpret bone mineral densitometry and total body fat composition
 - 3.5.4. Supervise and interpret nuclear cardiology investigations
 - 3.5.4.1. Exercise stress tests
 - 3.5.4.2. Pharmacologic stress tests, including dipyridamole and dobutamine
 - 3.5.5. Supervise, analyze, and interpret nuclear medicine studies, including CT components of hybrid imaging studies, incorporating clinical and biochemical information and results of other diagnostic imaging investigations to arrive at a diagnosis
 - 3.5.5.1. Planar
 - 3.5.5.2. SPECT
 - 3.5.5.3. SPECT/CT
 - 3.5.5.4. PET/CT
 - 3.6. Provide therapy using unsealed sources of radiation
 - 3.6.1. Determine the radiopharmaceutical choice and efficacy, and calculate the administered dose, integrating knowledge of internal dosimetry, radiation protection, and radiation safety
 - 3.6.2. Supervise the therapeutic administration of unsealed sources of radiation
- 4. Establish plans for ongoing care and, when appropriate, timely consultation**
- 4.1. Implement a patient-centred care plan that supports ongoing care, follow-up on investigations, response to treatment, and further consultation
 - 4.1.1. Ensure timely follow-up of results requiring urgent medical attention
 - 4.1.2. Provide guidance on radiation safety precautions
 - 4.1.3. Provide ongoing care for patients who have received therapy with unsealed sources of radiation

5. Actively contribute, as an individual and as a member of a team providing care, to the continuous improvement of health care quality and patient safety

- 5.1. Recognize and respond to harm from health care delivery, including patient safety incidents
 - 5.1.1. Recognize and manage adverse events and emergency conditions requiring urgent medical attention, including anaphylaxis and cardiac events
 - 5.1.2. Recognize and manage radiation safety incidents and near misses
- 5.2. Adopt strategies that promote patient safety and address human and system factors
 - 5.2.1. Promote the safe use of radionuclides for diagnosis and treatment
 - 5.2.2. Utilize the ALARA principle and promote its application to patient safety and occupational exposure

Communicator

Definition:

As *Communicators*, Nuclear Medicine specialists form relationships with patients and their families that facilitate the gathering and sharing of essential information for effective health care.

Key and Enabling Competencies: Nuclear Medicine specialists are able to...

1. Establish professional therapeutic relationships with patients and their families

- 1.1. Communicate using a patient-centred approach that encourages patient trust and autonomy and is characterized by empathy, respect, and compassion
- 1.2. Optimize the physical environment for patient comfort, dignity, privacy, engagement, and safety
- 1.3. Recognize when the perspectives, values, or biases of patients, physicians, or other health care professionals may have an impact on the quality of care, and modify the approach to the patient accordingly
- 1.4. Respond to a patient's non-verbal behaviours to enhance communication
- 1.5. Manage disagreements and emotionally charged conversations
- 1.6. Adapt to the unique needs and preferences of each patient and to their clinical condition and circumstances

2. Elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families

- 2.1. Use patient-centred interviewing skills to effectively gather relevant biomedical and psychosocial information
- 2.2. Provide a clear structure for and manage the flow of an entire patient encounter
- 2.3. Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent

3. Share health care information and plans with patients and their families

- 3.1. Share information and explanations that are clear, accurate, and timely, while assessing for patient and family understanding
 - 3.1.1. Share information about risks and benefits of procedures and treatments
 - 3.1.2. Convey the concept of relative risk, as it applies to radiation exposure, in discussion of investigations and treatment
- 3.2. Disclose harmful patient safety incidents to patients and their families accurately and appropriately

4. Engage patients and their families in developing plans that reflect the patient's health care needs and goals

- 4.1. Facilitate discussions with patients and their families in a way that is respectful, non-judgmental, and culturally safe
- 4.2. Assist patients and their families to identify, access, and make use of information and communication technologies to support their care and manage their health
- 4.3. Use communication skills and strategies that help patients and their families make informed decisions regarding their health

5. Document and share written and electronic information about the patient encounter to optimize clinical decision-making, patient safety, confidentiality, and privacy

- 5.1. Document diagnostic and therapeutic encounters in an accurate, complete, timely, and accessible manner, in compliance with regulatory and legal requirements
 - 5.1.1. Develop and utilize a systematic method of reporting, integrating clinical and imaging information
 - 5.1.2. Recognize emergent, urgent, and unexpected findings or results and convey information to the appropriate medical personnel in a timely fashion
 - 5.1.3. Provide oral and written reports that include relevant findings and interpretation while addressing the clinical question
 - 5.1.4. Document and ensure appropriate distribution of reports or summaries of procedures and their outcomes

- 5.2. Communicate effectively using a written health record, electronic medical record, or other digital technology
- 5.3. Share information with patients and others in a manner that enhances understanding and that respects patient privacy and confidentiality

Collaborator

Definition:

As *Collaborators*, Nuclear Medicine specialists work effectively with other health care professionals to provide safe, high-quality patient-centred care.

Key and Enabling Competencies: Nuclear Medicine specialists are able to...

1. Work effectively with physicians and other colleagues in the health care professions

- 1.1. Establish and maintain positive relationships with physicians and other colleagues in the health care professions to support relationship-centred collaborative care
- 1.2. Negotiate overlapping and shared responsibilities with physicians and other colleagues in the health care professions in episodic and ongoing care
 - 1.2.1. Ensure patients receive appropriate care at the end of life by collaborating with other professionals to ensure only appropriate diagnostic and therapeutic procedures are performed
- 1.3. Engage in respectful shared decision-making with physicians and other colleagues in the health care professions
 - 1.3.1. Convey information to clinicians in a manner that enhances patient management
 - 1.3.2. Participate effectively in discussions, rounds, or patient conferences
 - 1.3.3. Support clinical colleagues in the development and implementation of a management plan
- 1.4. Work with technical and other staff to address patient issues and ensure appropriate medical care
 - 1.4.1. Communicate with administrative and technical staff to maintain quality of imaging
 - 1.4.2. Provide guidance to resolve clinical or imaging challenges
 - 1.4.3. Work with staff to ensure patient and technologist safety, including radiation safety

2. Work with physicians and other colleagues in the health care professions to promote understanding, manage differences, and resolve conflicts

- 2.1. Show respect toward collaborators
- 2.2. Implement strategies to promote understanding, manage differences, and resolve conflict in a manner that supports a collaborative culture

3. Hand over the care of a patient to another health care professional to facilitate continuity of safe patient care

- 3.1. Determine when care should be transferred to another physician or health care professional
- 3.2. Demonstrate safe handover of care, using both oral and written communication, during a patient transition to a different health care professional, setting, or stage of care

Leader

Definition:

As *Leaders*, Nuclear Medicine specialists engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.

Key and Enabling Competencies: Nuclear Medicine specialists are able to...

1. Contribute to the improvement of health care delivery in teams, organizations, and systems

- 1.1. Apply the science of quality improvement to contribute to improving systems of patient care
 - 1.1.1. Provide critical evaluations of diagnostic or therapeutic procedures using radionuclides
 - 1.1.2. Contribute to the identification of quality management or safety problems, the formulation and execution of a plan of action, and the assessment of that plan
- 1.2. Contribute to a culture that promotes patient safety
- 1.3. Analyze patient safety incidents to enhance systems of care
- 1.4. Use health informatics to improve the quality of patient care and optimize patient safety

2. Engage in the stewardship of health care resources

- 2.1. Allocate health care resources for optimal patient care
 - 2.1.1. Consult with technical staff to judiciously allocate radiopharmaceutical and imaging resources
- 2.2. Apply evidence and management processes to achieve cost-appropriate care
 - 2.2.1. Integrate nuclear medicine investigations and therapies into patient care algorithms and guidelines leading to appropriate patient management and resource utilization

3. Demonstrate leadership in health care systems

- 3.1. Demonstrate leadership skills to enhance health care
 - 3.1.1. Demonstrate responsibility for radiation safety
 - 3.1.1.1. Describe the organizational aspects of radiation safety committees at the institutional, regional, provincial, territorial, and national level
 - 3.1.1.2. Demonstrate an understanding of the function of radiation safety committees
 - 3.1.1.3. Participate in radiation safety activities
 - 3.1.1.4. Assume responsibility for, or advise on, radiation safety within a department, hospital, or clinic, or at a regional, provincial, or territorial level
 - 3.1.2. Demonstrate knowledge of the principles of health care funding and the structure and function of the health care system
 - 3.1.2.1. Describe how medical resources are distributed on the basis of demographic data, and the effect on nuclear medicine practice
 - 3.1.2.2. Demonstrate knowledge of financial and budgetary issues in managing a nuclear medicine service or practice
 - 3.1.2.3. Demonstrate knowledge of human resource issues in managing a nuclear medicine service or practice
 - 3.1.3. Manage the functions and operation of a nuclear medicine department and/or clinic
 - 3.1.3.1. Work with administrators and other staff to provide safe health care services and to maintain quality of imaging
 - 3.1.3.2. Administer and oversee the operation of a nuclear medicine laboratory, including the supervision of a quality control program for equipment and radiopharmaceuticals
 - 3.1.3.3. Adapt or develop imaging schedules to address changes in resources

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- 3.1.3.4. Develop imaging protocols to ensure procedures are performed optimally in order to obtain maximum diagnostic information
 - 3.1.3.5. Consult established guidelines and incorporate recommendations into protocols as appropriate
 - 3.1.3.6. Work with staff to address personnel, management, and patient care issues
 - 3.1.3.7. Recognize and address quality control issues or work with appropriate personnel to address them
- 3.1.4. Participate in the process of equipment purchase and testing
- 3.1.4.1. Demonstrate an understanding of the factors affecting the lifetime of equipment and recognize the need for replacement or additional equipment
 - 3.1.4.2. Demonstrate an understanding of the process of equipment acquisition
 - 3.1.4.3. Identify and evaluate options to choose the most appropriate equipment for the clinical requirements
 - 3.1.4.4. Describe the principles of acceptance testing and other evaluation to ensure that both technical and clinical needs are met by the equipment
- 3.2. Facilitate change in health care to enhance services and outcomes
- 3.2.1. Work with government agencies, regulatory bodies, and national specialty societies to ensure the delivery of high quality nuclear medicine service
 - 3.2.1.1. Demonstrate an understanding of the role of government agencies and regulatory bodies in the clinical practice of Nuclear Medicine, including the Canadian Nuclear Safety Commission and Health Canada
 - 3.2.1.2. Demonstrate understanding of the role of the specialty societies and their work with regulatory bodies, government agencies, and the public to advance the appropriate utilization of nuclear medicine services
 - 3.2.1.3. Recognize issues which may impact on the ability to provide nuclear medicine services and consult with local, provincial, and/or national agencies to provide feedback and seek advice
 - 3.2.1.4. Work with specialty organizations and local, provincial, and/or national regulatory bodies to achieve and maintain service quality and high standards of patient care, while respecting regulatory requirements

4. Manage career planning, finances, and health human resources in personal practice(s)

- 4.1. Set priorities and manage time to integrate practice and personal life
- 4.2. Manage personal professional practice(s) and career
- 4.3. Implement processes to ensure personal practice improvement

Health Advocate

Definition:

As *Health Advocates*, Nuclear Medicine specialists contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.

Key and Enabling Competencies: Nuclear Medicine specialists are able to...

1. Respond to an individual patient's health needs by advocating with the patient within and beyond the clinical environment

- 1.1. Work with patients to address determinants of health that affect them and their access to needed health services or resources
- 1.2. Work with patients and their families to increase opportunities to adopt healthy behaviours
- 1.3. Incorporate disease prevention, health promotion, and health surveillance into interactions with individual patients

2. Respond to the needs of the communities or populations they serve by advocating with them for system-level change in a socially accountable manner

- 2.1. Work with a community or population to identify the determinants of health that affect them
 - 2.1.1. Identify the determinants of health of communities or populations served, including barriers to access to care and resources, and describe an approach to implement change, particularly with respect to cancer and cardiac disease
 - 2.1.2. Demonstrate knowledge of the impact of public policy on access to nuclear medicine services, especially radiopharmaceutical research, development, and production
- 2.2. Improve clinical practice by applying a process of continuous quality improvement to disease prevention, health promotion, and health surveillance activities

- 2.3. Contribute to a process to improve health in the community or population they serve
 - 2.3.1. Describe the role of the medical profession in advocating collectively for health and for patient safety, with particular attention to medical utilization of radioactive materials

Scholar

Definition:

As *Scholars*, Nuclear Medicine specialists demonstrate a lifelong commitment to excellence in practice through continuous learning, and by teaching others, evaluating evidence, and contributing to scholarship.

Key and Enabling Competencies: Nuclear Medicine specialists are able to...

1. Engage in the continuous enhancement of their professional activities through ongoing learning

- 1.1. Develop, implement, monitor, and revise a personal learning plan to enhance professional practice
- 1.2. Identify opportunities for learning and improvement by regularly reflecting on and assessing their performance using various internal and external data sources
- 1.3. Engage in collaborative learning to continuously improve personal practice and contribute to collective improvements in practice

2. Teach students, residents, the public, and other health care professionals

- 2.1. Recognize the influence of role-modelling and the impact of the formal, informal, and hidden curriculum on learners
- 2.2. Promote a safe and respectful learning environment
- 2.3. Ensure patient safety is maintained when learners are involved
- 2.4. Plan and deliver learning activities
 - 2.4.1. Provide information about radiation safety, risk, and applicable regulations, at a knowledge or education-appropriate level in order to promote understanding of the issues and the discipline
- 2.5. Provide feedback to enhance learning and performance
- 2.6. Assess and evaluate learners, teachers, and programs in an educationally appropriate manner

3. Integrate best available evidence into practice

- 3.1. Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions that can address them
- 3.2. Identify, select, and navigate pre-appraised resources
- 3.3. Critically evaluate the integrity, reliability, and applicability of health-related research and literature
- 3.4. Integrate evidence into decision-making in their practice, including technical, radiopharmaceutical, and regulatory developments

4. Contribute to the creation and dissemination of knowledge and practices applicable to health

- 4.1. Demonstrate an understanding of the scientific principles of research and scholarly inquiry and the role of research evidence in health care
- 4.2. Identify ethical principles for research and incorporate them into obtaining informed consent, considering potential harms and benefits, and considering vulnerable populations
- 4.3. Contribute to the work of a research program
- 4.4. Pose questions amenable to scholarly investigation and select appropriate methods to address them
- 4.5. Summarize and communicate to professional and lay audiences, including patients and their families, the findings of relevant research and scholarly inquiry

Professional

Definition:

As Professionals, Nuclear Medicine specialists are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.

Key and Enabling Competencies: Nuclear Medicine specialists are able to...

1. Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards

- 1.1. Exhibit appropriate professional behaviours and relationships in all aspects of practice, demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality
- 1.2. Demonstrate a commitment to excellence in all aspects of practice
- 1.3. Recognize and respond to ethical issues encountered in practice
- 1.4. Recognize and manage conflicts of interest

1.5. Exhibit professional behaviours in the use of technology-enabled communication

2. Demonstrate a commitment to society by recognizing and responding to societal expectations in health care

2.1. Demonstrate accountability to patients, society, and the profession by responding to societal expectations of physicians

2.2. Demonstrate a commitment to patient safety and quality improvement

3. Demonstrate a commitment to the profession by adhering to standards and participating in physician-led regulation

3.1. Fulfil and adhere to professional and ethical codes, standards of practice, and laws governing practice

3.1.1. Adhere to regulatory requirements related to radiation safety and the use of radiopharmaceuticals

3.2. Recognize and respond to unprofessional and unethical behaviours in physicians and other colleagues in the health care professions

3.3. Participate in peer assessment and standard setting

4. Demonstrate a commitment to physician health and well-being to foster optimal patient care

4.1. Exhibit self-awareness and manage influences on personal well-being and professional performance

4.1.1. Demonstrate a commitment to safe practices in Nuclear Medicine to minimize occupational risk

4.2. Manage personal and professional demands for a sustainable practice throughout the physician life cycle

4.3. Promote a culture that recognizes, supports, and responds effectively to colleagues in need

This document is to be reviewed by the Specialty Committee in Nuclear Medicine by December 2026.

APPROVED – Specialty Standards Review Committee – March 2019

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