



New Zealand
Medical Radiation
Technologists Board
Te Poari Ringa Hangarua Iraruke

Policy:
Competence Standards for Medical
Imaging and Radiation Therapy
Practitioners in Aotearoa New Zealand

*The Medical Radiation Technologists Board is
responsible for setting the standards of
competence for the practice of medical
imaging and radiation therapy in Aotearoa
New Zealand under the Health Practitioners
Competence Assurance Act 2003*

Revised July 2018

Policy Title	Competence Standards for Medical Imaging and Radiation Therapy Practitioners in Aotearoa New Zealand
Reference Number	2018-Jul-V2-MRT Competence Standards
Scope	This policy applies to all practitioners registered (or seeking registration) with the Medical Radiation Technologists Board

Associated Policy Documents
Code of Ethics
Registration

Revision Schedule			
Version Number	Version Date	Approved By	Next Review
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Acknowledgements

The Medical Radiation Technologists Board extends its appreciation to its Australian counterpart, the Medical Radiation Practice Board of Australia, whose willingness for us to use and adapt their *Professional Capabilities for Medical Radiation Practice* document has allowed the 2016 review of the New Zealand competence standards to be approached without unnecessarily 'reinventing the wheel'.

More importantly, it offers a New Zealand document that uses the same structure for the articulation of key competencies and the performance indicators aligned with each of those. Having similarly articulated and formatted competence standards serves to strengthen the two Boards ties under the provisions of the Trans-Tasman Mutual Recognition Act. Having similarly articulated competence standards allows for a more seamless transition of medical imaging/radiation therapy practitioners wanting to practise in either of the two countries.

The Medical Radiation Technologists Board also extends its thanks to those practitioners who accepted an invitation to work with Board members to develop a draft revision of the *Competencies Framework for Medical Imaging and Radiation Therapy Practice* in preparation for a public consultation process. A list of the practitioners who assisted the Board with this critical piece of work is provided in Appendix 2.

Our sincere appreciation to all of the practitioners and stakeholders who took the time to critique the Board's proposed *Competencies Framework for Medical Imaging and Radiation Therapy Practice* document. Your feedback has been invaluable in assisting the Board with producing this revised edition of the competence standards required for the practice of medical imaging and radiation therapy practice in New Zealand, under the Health Practitioners Competence Assurance Act 2003.

Introduction

The Medical Radiation Technologists Board (the Board) is established under the Health Practitioners Competence Assurance Act 2003 (the Act). The Board has a primary responsibility in protecting the health and safety of the public by ensuring medical imaging and radiation therapy practitioners are competent and fit to practise. Setting standards for practitioners' education and competence is a critical strategy for enabling the latter.

Competence standards need to be dynamic to reflect evolving changes to professional practice. The Board manages this through a regular schedule of review that is inclusive of a public consultation process.

The 2016 Review: Strengthening the Past to Prepare for the Future

The Board formulated its first set of competence standards in 1999 with seven subsequent revisions (through to 2013) for each of the five scopes of practice defined for the profession of medical imaging and radiation therapy. Since 2004 those revisions have been conducted under the Act.

Up until and inclusive of 2013, reviews focused on revisions of the content of the competence standards required for each scope of practice, with the design framework for the expression of the standards remaining essentially unchanged for the last seventeen years.

In 2016 the Board has undertaken a broader review of the competencies framework for medical imaging/radiation therapy practitioners to include a revision of both the design and content of the competence standards.

In its 2016 review the Board has sought to future-proof its competence standards through the adoption of an overarching framework based on the principles of flexibility and versatility, and that is relevant to a variety of stakeholders. This is essential for medical imaging and radiation therapy practice which occurs within a healthcare environment that is continually evolving, and is subject to ongoing advancements in technology. In addition the revised competencies framework includes better alignment with that of the Medical Radiation Practice Board of Australia (MRPBA).

The Board's competence standards is a "living document" and will continue to undergo a regular schedule of review to ensure the standards continue to be fit for purpose over time.

Competence Standards

Competence standards are a description of the ability of a medical imaging/radiation therapy practitioner to practise safely and effectively in a variety of contexts and environments.

Competence is influenced by many factors including, but not limited to, the practitioner's qualifications, clinical experience, professional development and his/her ability to integrate knowledge, skills, attitudes, values and judgements within a practice setting. A critical value of competence standards is their capacity to support and facilitate professional practice and growth.

The standards adopted by the Board are expressed as entry-level competencies and behaviours. However it is expected that all practitioners will successively build on these competence standards to levels expected of experienced practitioners.

The competence standards identify the minimum knowledge, skills and professional attributes necessary for practice. During any one procedure it is expected practitioners will demonstrate elements of practice across a number of broadly-defined domains of competence. This recognises that competent professional practice is more than a sum of each discrete part. It requires an ability to draw on and integrate the breadth of competencies to support overall performance.

Context of the Competence Standards

The competence standards for the practice of medical imaging and radiation therapy are directly linked to each of the scopes of practice.

Medical imaging/radiation therapy practitioners in Aotearoa New Zealand practise within a legislated regulatory framework under the Health Practitioners Competence Assurance Act 2003. The Board has defined a number of scopes of practice which serve to protect the health and safety of the public through the use of protected professional titles. Only individuals who hold current registration with the Medical Radiation Technologists Board are permitted to use any of the following professional titles:

- Medical Imaging Technologist
- Radiation Therapist
- Nuclear Medical Imaging Technologist
- Sonographer
- Magnetic Resonance Imaging Technologist
- Trainee Nuclear Medical Imaging Technologist
- Trainee Sonographer
- Trainee Magnetic Resonance Imaging Technologist

Details of the gazetted descriptions for each of the above scopes of practice are set out in the appendix section of this document.

Application of the Competence Standards

The Board's competence standards are intended to be sufficiently flexible and versatile to be relevant to a variety of stakeholders.

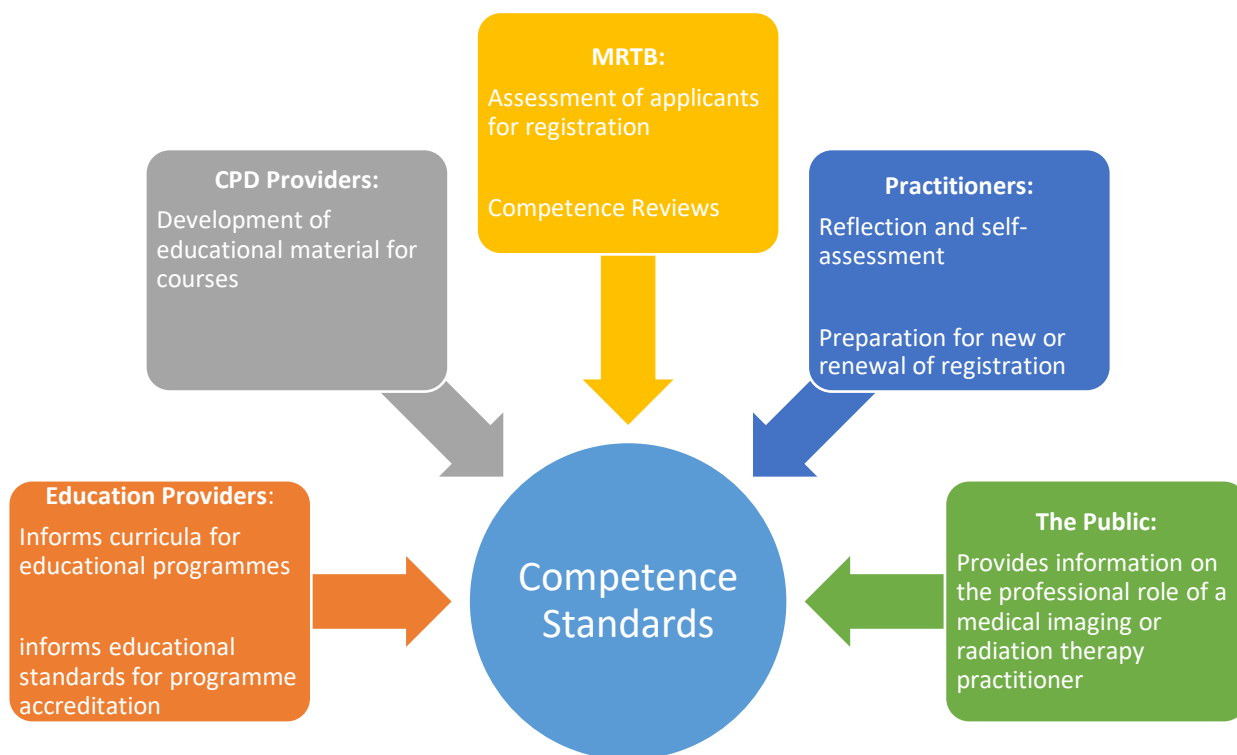
The Board uses the competence standards as a reference point of professional competence when exercising their statutory functions under the Health Practitioners Competence Assurance Act 2003, including for:

- Registration of practitioners qualified through an approved medical imaging or radiation therapy programme in Aotearoa New Zealand
- Registration of practitioners who completed their initial medical imaging or radiation therapy qualifications in other countries
- Recertification of practitioners who are registered and are returning to practice
- Evaluation of a registrant whose level of competence to practise may pose a risk of harm to the public (e.g. if the Board receives a complaint or notification about that registrant)

Individual practitioners should use the standards to guide their professional development including using a reflective approach to identify their particular learning needs based on the competencies required for their particular scope of practice.

Providers of pre-registration education programmes are expected to use the competence standards to inform the development of graduate curricula. This will assist new registrants in understanding the professional competencies required of them once registered.

The competence standards can also be a useful resource reference/benchmark for other regulatory authorities, healthcare professionals, professional bodies, the public, and other stakeholders.



Structure of the Competence Standards

The competence standards have been articulated so as to be sufficiently broad-based to allow for universal applicability across a variety of practice settings, while at the same time being sufficiently focused to articulate the particular competencies specific to the practice of medical imaging and radiation therapy.

<p>Domains</p> <p>Key competencies are arranged within a number of integrated themes called <i>Domains</i>. There are five domains of competence that apply to each of the scopes of practice for medical imaging/radiation therapy practitioners. In addition competencies specific to each scope of practice are articulated in a number of subsets (5A to 5E) of the fifth domain.</p> <p>Domain 1: Professional and Ethical Conduct</p> <p>Domain 2: Communication and Collaboration</p> <p>Domain 3: Evidence-Based Practice and Professional Learning</p> <p>Domain 4: Safety of Practice and Risk Management</p> <p>Domain 5: Medical Imaging/Radiation Therapy Sciences</p> <p>Domain 5A: Medical Imaging Technologist</p> <p>Domain 5B: Nuclear Medicine Technologist</p> <p>Domain 5C: Radiation Therapy Technologist</p> <p>Domain 5D: Sonographer</p> <p>Domain 5E: Magnetic Resonance Imaging (MRI) Technologist</p>		
<p>Each domain is then expanded on at three levels:</p>		
Key Competencies	Competency Indicators	Notes
The knowledge, skills, attitudes, values and judgements medical imaging/radiation therapy practitioners require to practise safely and effectively in a range of contexts and situations	<p>Generic examples of competence performance.</p> <p>Indicators are neither comprehensive nor exhaustive – they provide examples of evidence of competence</p>	<p>Notes have been included against some of the indicator statements</p> <p>Notes beginning with “Must” indicate that all of the stated areas are mandatory to be assessed against</p> <p>Notes beginning with “May” indicate that any in the list are provided as examples and are not mandatory to be assessed against</p>

Interpreting Competency Indicators

Indicator statements include descriptors of the behaviours that characterise a practitioner's competence in practice:

Demonstrate Understanding:

The practitioner needs to understand the underpinning knowledge pertaining to specific areas of medical imaging/radiation therapy practice. For example the practitioner is able to demonstrate through verbal or written testing, an understanding of the underpinning knowledge related to imaging anatomy or imaging appearances which is applied to inform procedures or treatments. For some competency indicators the practitioner may require the knowledge but not necessarily be required to perform specific procedures.

Apply Knowledge:

The practitioner is required to apply their detailed knowledge to perform procedures, and engage in professional and safe practice. These are the *doing* elements.

Interpreting Notes Statements

- A note statement beginning with “Must” indicates all of the stated areas are mandatory to be assessed against.
- A note statement beginning with “May” indicates that any in the list are provided as examples and are not mandatory to be assessed against.

Competence Standards for Medical Imaging and Radiation Therapy Practice in Aotearoa New Zealand

An Overview of the Competencies Domains

Domain 1: Professional and Ethical Conduct

This domain covers practitioners' responsibility to be professional and ethical and to practise within the current medico-legal framework. Includes their responsibility for ensuring patient confidentiality/privacy is maintained at all times while recognising the potential role as a patient advocate

Domain 2: Communication and Collaboration

This domain covers practitioners' responsibility in utilising appropriate, clear and effective communication and their responsibility for ensuring they function effectively as a member of a health team at all times

Domain 3: Evidence-Based Practice and Professional Learning

This domain covers practitioners' responsibility to engage in evidence-based practice and to critically monitor their actions through a range of reflective processes. It includes their responsibility for identifying, planning and implementing their ongoing professional learning needs

Domain 4: Safety of Practice and Risk Management

This domain covers practitioners' responsibility to protect patients, others and the environment from harm by managing and responding to the risks inherent in both healthcare and medical imaging/ radiation therapy practice. It includes their responsibility for ensuring high quality professional services are provided for the benefit of patients and other service users

Domain 5: Medical Imaging/Radiation Therapy Sciences Practice

This domain covers the knowledge, skills and capabilities practitioners need to practise the profession of medical imaging and radiation therapy. Elements in this domain are common to all medical imaging/radiation therapy practitioners, taking into account the different requirements of each scope of practice

Domain 5A: Medical Imaging Technologist

This domain covers the additional knowledge, skills and capabilities specific to the Medical Imaging Technologist scope of practice

Domain 5B: Nuclear Medicine Technologist

This domain covers the additional knowledge, skills and capabilities specific to the Nuclear Medicine Technologist scope of practice

Domain 5C: Radiation Therapist

This domain covers the additional knowledge, skills and capabilities specific to the Radiation Therapist scope of practice

Domain 5D: Sonographer

This domain covers the additional knowledge, skills and capabilities specific to the Sonographer scope of practice

Domain 5E: Magnetic Resonance Imaging (MRI) Technologist

This domain covers the additional knowledge, skills and capabilities specific to the MRI Technologist scope of practice

Domain 1: Professional and Ethical Conduct

Code	Key Competencies	Code	Competency Indicators	Notes
Dom1.Com.1	Practise in an ethical and professional manner consistent with relevant legislation and regulatory requirements, and knowledge of service provisions and resource management	Dom1.Com.1a	Apply knowledge of legal responsibilities	Must include an understanding of responsibilities contained in NZ legislation and regulations, specific responsibilities to maintain confidentiality, confirm informed consent and exercising duty of care
		Dom1.Com.1b	Manage personal, mental and physical health to ensure fitness to practise	Must include competence, professionalism, including a sense of responsibility and accountability, self-awareness and professional values, sound mental health and the capacity to maintain health and wellbeing for practice
		Dom1.Com.1c	Apply knowledge of mandatory and voluntary reporting obligations	Must include making a notification about the health (impairment), conduct or performance of a registered health practitioner who may be posing a risk of harm to the public, as well as their own impairment to practise
		Dom1.Com.1d	Apply knowledge of the Medical Radiation Technologists Board's <i>Code of Ethics</i> to their practice	
		Dom1.Com.1e	Provide relevant information to the patient and apply knowledge of appropriate methods to obtain informed consent	May include identifying people at risk such as children, pregnant women and their foetus, breastfeeding mothers, and includes information such as explaining the implications of contrast/radiopharmaceutical administration
		Dom1.Com.1f	Apply knowledge of the New Zealand health system	May include knowledge of service provision and resource management arrangements, the structure and role of public and private providers and reporting requirements
		Dom1.Com.1g	Apply knowledge of the basic principles underpinning ethical practice within the medical imaging/radiation therapy profession	Must include respect of the rights of the individual, respect of the autonomy of the individual, cause no harm, and advance the common good

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom1.Com.1	Practise in an ethical and professional manner consistent with relevant legislation and regulatory requirements, and knowledge of service provisions and resource management	Dom1.Com.1h	Apply knowledge of appropriate levels of autonomy and professional judgement in a variety of medical imaging/radiation therapy practice settings	Must include recognition that the final determination of clinical appropriateness is the responsibility of the clinical radiologist/consultant specialist or radiation oncologist
Dom1.Com.2	Provide each patient with an appropriate level of dignity and care in a range of settings in partnership with patients, families/whanau, and communities	Dom1.Com.2a	Apply knowledge of the influence of socio-cultural factors on patient attitudes and responses to medical imaging/ radiation therapy services	Must include socio-cultural factors related to cultural and linguistic diversity, age, gender, disability, socio-economic, geographic locations Must include application of the Treaty of Waitangi with an understanding of its principles within the context of Aotearoa New Zealand and medical imaging and radiation therapy practice and its practical application within the profession Must uphold tikanga best practice guidelines when working with Maori patients and their whanau
		Dom1.Com.2b	Apply knowledge of appropriate professional behaviour in patient interactions	Must include behaviour that is non-discriminatory, empathetic and respectful of socio-cultural differences
		Dom1.Com.2c	Apply knowledge of appropriate boundaries between patients and health professionals	Must include understanding of the boundaries involved with the use of social media
Dom1.Com.3	Assume responsibility and accept accountability for professional decisions	Dom1.Com.3a	Apply knowledge of appropriate responses to unsafe or unprofessional practice within their scope of practice	
		Dom1.Com.3b	Apply knowledge of organisational policies and guidelines with professional standards within their scope of practice	
		Dom1.Com.3c	Apply knowledge of relevant quality systems appropriate to their scope of practice	May include workplace-specific systems and protocols, and relevant NZ publications

Code	Key Competencies	Code	Competency Indicators	Notes
Dom1.Com.4	Advocate on behalf of the patient when appropriate within the context of the practitioner's scope of practice	Dom1.Com.4a	Apply knowledge of the principles of patient advocacy and their application to medical imaging/radiation therapy services	May include supporting and promoting the rights and interests of individuals, assisting individuals to achieve or maintain their rights and representing their needs. Advocacy strategies include representing the patient, supporting the patient to represent their own interests and ensuring people are empowered to voice their perspectives
		Dom1.Com.4b	Apply knowledge of when it may be appropriate to intervene on the patient's behalf	
		Dom1.Com.4c	Apply knowledge of responsibilities to consult with other members of the health care team about the suitability and application of the proposed medical imaging/radiation therapy procedure when appropriate	Must include an understanding of the relative risks and benefits to patients of the range of modalities/treatments used within medical imaging and radiation therapy practice

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Domain 2: Communication and Collaboration

Code	Key Competencies	Code	Competency Indicators	Notes
Dom2.Com.1	Communicate clearly, sensitively and effectively with the patient and their family/whanau or carers	Dom2.Com.1a	Apply knowledge of ways to establish rapport with the patient to gain understanding of their issues and perspectives	May be influenced by English language skills, health literacy, age, health status, culture
		Dom2.Com.1b	Apply knowledge of ways to communicate with the patient and/or carers to collect and convey information and reach agreement about the purpose of the examination/treatment, techniques and procedures	
		Dom2.Com.1c	Apply knowledge of communication strategies to engender trust and confidence and respect patient confidentiality, privacy and dignity	
		Dom2.Com.1d	Respond to patient queries or issues	
		Dom2.Com.1e	Apply knowledge of likely communications barriers specific to individual patients and/or carers	Must include the practitioner demonstrating an awareness of the ways their own culture and experience affect their interpersonal style and having an awareness of strategies to ensure this does not present an impediment
		Dom2.Com.1f	Apply knowledge of appropriate adjustments to communication style to suit the particular needs of the patient including those from culturally and linguistically diverse backgrounds	Must include active listening, use of appropriate language and detail, use of appropriate verbal and non-verbal cues and language, and confirming that the other person understood
		Dom2.Com.1g	Apply knowledge of how to engage third parties to facilitate effective communication when required	May include communication with family/whanau, significant others, carers, interpreters, legal guardians and medical advocates
		Dom2.Com.1h	Apply knowledge of informed consent	Must include understanding that informed consent is a person's voluntary decision about healthcare that is made with knowledge and understanding of the benefits and risks involved

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom2.Com.2	Collaborate with other health practitioners	Dom2.Com.2a	Apply knowledge of effective and respectful working relationships with health practitioners	
		Dom2.Com.2b	Apply knowledge of professional roles and responsibilities of healthcare team members and other service providers	May include registered health practitioners, accredited health professionals, licensed health professionals, and unregistered healthcare workers
		Dom2.Com.2c	Apply knowledge of accepted protocols and procedures to provide relevant and timely verbal and written communication	Must consider the information needs of the audience and use of the medical terminology appropriate to their scope of practice and applying knowledge of organisational protocols

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Domain 3: Evidence-Based Practice and Professional Learning

Code	Key Competencies	Code	Competency Indicators	Notes
Dom3.Com.1	Apply critical and reflective thinking to resolve clinical challenges	Dom3.Com.1a	Describe the clinical challenge or question	
		Dom3.Com.1b	Identify information required to respond to the challenge or question	
		Dom3.Com.1c	Apply knowledge of appropriate methods to collect and assess evidence	Must include an understanding of commonly used quantitative and qualitative research methods
		Dom3.Com.1d	Apply knowledge of the identification, access or collection of information from credible sources	
		Dom3.1e	Apply knowledge of how to assess the adequacy of information to answer the issue under inquiry	
		Dom3.Com.1f	Apply knowledge of the assessment of imaging results, applying clinical reasoning and reflective processes to identify implications for practice, including limitations of practice and recognition of need to consult	May include skills in questioning, analysing, synthesising, assessing, and cognitive reasoning, and the critical appraisal of literature and evidence. May include self-reflection during and after a clinical challenge or experience. It may involve structured and informal reflection to review and integrate knowledge and findings into practice
		Dom3.Com.1g	Apply knowledge of the review of clinical action plans/protocols	May include detailed plans or proposals, informal updates and journal articles

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom3.Com.2	Identify ongoing professional learning needs and opportunities	Dom3.Com.2a	Apply knowledge of legal and professional responsibilities to undertake continuing professional development (CPD)	
		Dom3.Com.2b	Apply knowledge of personal strengths and limitations to identify learning required to improve and adapt professional practice	
		Dom3.Com.2c	Apply knowledge of strategies for identifying learning needs of self and others to deliver improved patient outcomes	
		Dom3.Com.2d	Apply knowledge of planning and implementation strategies to address professional and development needs	May be provided by the professional community and the broader healthcare network/practice
Dom3.Com.3	Facilitate understanding and learning in a clinical environment	Dom3.Com.3a	Apply knowledge of communication strategies to facilitate understanding and learning both within an individual and group context	May include a range of teaching methods
		Dom3.Com.3b	Apply knowledge of assessment, evaluation and feedback	May include a registered medical imaging/radiation therapy practitioner providing clinical supervision to other medical imaging/radiation therapy practitioners

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Domain 4: Safety of Practice and Risk Management

Code	Key Competencies	Code	Competency Indicators	Notes
Dom4.Com.1	Practise safely, appropriate to the scope of practice	Dom4.Com.1a	Apply knowledge of New Zealand radiation safety legislation and/or guidelines of international best practice in the safe use of medical imaging/radiation therapy technologies	
		Dom4.Com.1b	Apply knowledge of the principles of risk management relevant to medical imaging/radiation therapy	
		Dom4.Com.1c	Apply knowledge of risk control systems and procedures	Must include an understanding of principles of relevant quality control systems and application to risk management
		Dom4.Com.1d	Apply knowledge of safe medical imaging/radiation therapy practice	Must include review of the referral and procedures to ensure appropriate justification, optimisation and protection
Dom4.Com.2	Protect and enhance patient safety	Dom4.Com.2a	Apply knowledge of patient identification procedures to confirm the correct match of patient with intended procedure	
		Dom4.Com.2b	Apply knowledge of maintaining and communicating patient information to ensure accuracy and confidentiality	Must include organisational protocols and legislative requirements for maintaining patient records
		Dom4.Com.2c	Apply knowledge of risks associated with patient transfers	
		Dom4.Com.2d	Apply knowledge of risk of infection	Must demonstrate understanding of transmission modes of infections (host, agent and environment), established practices for preventing the transmission including effective hand hygiene, aseptic techniques, and ability to implement NZ Ministry of Health infection prevention and control guidelines ¹

¹ New Zealand Standard 8134.3: 2008 Health and Disability Services (Infection Prevention and Control) Standards

Ref	Key Competencies	Ref	Competency Indicators	Notes
Dom4.Com.3	Operate equipment safely and appropriate to the scope of practice	Dom4.Com.3a	Apply knowledge of equipment to confirm that it is in good order and operating within acceptable parameters	
		Dom4.Com.3b	Apply knowledge of the identification and appropriate action to correct unacceptable condition or operation of equipment	
		Dom4.Com.3c	Apply knowledge of protocols to record and report conformance and non-conformance of equipment	
Dom4.Com.4	Maintain safety of self and others in the work environment appropriate to the scope of practice	Dom4.Com.4a	Apply knowledge of legal responsibilities for health and safety of self and others	Must include the Health and Safety at Work Act 2015 and Radiation Safety Act 2016
		Dom4.Com.4b	Apply knowledge of the safety hazards in the workplace and apply knowledge of responsibilities for notification	Must include protocols or instructions, legislation and regulations
		Dom4.Com.4c	Apply knowledge of the identification and implementation of safety management procedures	
		Dom4.Com.4d	Apply knowledge of medical imaging/radiation therapy related hazards and control measures to ensure the safety of others in the workplace	Must include time, distance, patient shielding, and ALARA principle
		Dom4.Com.4e	Apply knowledge of appropriate personal protective clothing and equipment	
		Dom4.Com.4f	Apply knowledge of reporting incidents in accordance with protocols, procedures and legal requirements	

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Domain 5: Medical Imaging/Radiation Therapy Sciences Practice

Ref	Key Competencies	Ref	Competency Indicators	Notes
Dom5.Com.1	Apply understanding of anatomy, physiology and pathology appropriate to the scope of practice	Dom5.Com.1a	Apply knowledge of the anatomy and physiology of the human body relevant to the scope of practice	
		Dom5.Com.1b	Apply knowledge of the pathophysiology underpinning disease and injuries affecting the human body	
		Dom5.Com.1c	Apply knowledge of anatomical structures, injuries and pathologies of the human body in dynamic, planar, sectional and 3D images	
Dom5.Com.2	Apply principles of medical imaging/radiation therapy physics and equipment	Dom5.Com.2a	Apply knowledge of principles of medical imaging/radiation therapy physics and equipment	
		Dom5.Com.2b	Apply knowledge of the use of equipment and laboratory procedures appropriate to the scope of practice	May include x-ray equipment, computed radiography, digital radiography, mammography, dental panoramic radiograph, fluoroscopy, angiography, computed tomography, magnetic resonance imaging, ultrasound, gamma imaging, positron emission tomography, single photon emission computed tomography, dose calibrator, bone mineral densitometry, well counter, centrifuges, fume hoods, superficial x-ray, linear accelerator, simulators, brachytherapy, ion chambers, planning systems. May include the use of sample counters, operating centrifuges, use of fume hoods, ancillary equipment
		Dom5.Com.2c	Apply knowledge of the principles of medical imaging/radiation therapy physics to optimise patient outcomes	

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5.Com.3	Use patient information management systems appropriately	Dom5.Com.3a	Apply knowledge of legislative responsibilities relating to ownership, storage, retention and destruction of patient records and other practice documentation	
		Dom5.Com.3b	Apply knowledge of patient information systems	May include Picture and Archiving Communication System (PACS), radiation oncology information systems, radiology information system, National Health Index (NHI) system, electronic medical records, risk management systems
		Dom5.Com.3c	Apply knowledge of the verification and management of information applicable to the scope of practice	
Dom5.Com.4	Confirm the procedure according to clinical indicators	Dom5.Com.4a	Apply knowledge of the patient's clinical history, referral and current medical information to confirm the requested procedure is appropriate	May include patient records, previous medical imaging/treatment, information collected from patient/carer during the procedure
		Dom5.Com.4b	Apply knowledge of the appropriate imaging and/or treatment protocols and priorities, including consideration of the information collected during the initial interaction with the patient and knowledge of imaging and/or treatment options	
		Dom5.Com.4c	Apply knowledge of adaptation of the requested examination to an individual patient considering available clinical information	

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5.Com.5	Exercise clinical judgement and decision-making	Dom5.Com.5a	Apply knowledge of factors or conditions that may affect the patient's behaviour and/or capacity to undergo the procedure	May include pre-existing medical and/or physical and physiological conditions, age, pregnancy, psycho-social, socio-economic, culture, English language skills
		Dom5.Com.5b	Apply knowledge of patient preparation requirements	
		Dom5.Com.5c	Apply knowledge of patients most at risk, according to modality and/or specific procedures	May include radiation and pregnant women/infants/the elderly, MRI and implants
		Dom5.Com.5d	Apply knowledge of contraindications and limitations of medical imaging/radiation therapy services	Must include determining appropriate adjustments to procedures and communicating those to the patient
		Dom5.Com.5e	Apply knowledge of patient assessment and medical imaging/radiation therapy interventions in accordance with legislation, registration standards, codes and guidelines	
Dom5.Com.6	Deliver patient care appropriate to the scope of practice	Dom5.Com.6a	Apply knowledge of bio-effects of ionising and non-ionising radiation and dose optimisation to deliver safe and effective patient outcomes	
		Dom5.Com.6b	Identify and respond to a patient's deteriorating condition or inability to undergo a procedure or treatment, consistent with duty of care and statutory requirements	
		Dom5.Com.6c	Apply knowledge of responsibilities to confirm the requested examination addresses the clinical question and for conveying information when significant findings are identified	Must include recognising and applying knowledge of normal from abnormal imaging appearances and relating appearances to the patient's clinical history and recognising the need for further sources of input May include protocols or instructions about verbal or written communication and record keeping

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5.Com.7	Manage and manipulate 3D datasets for image acquisition relevant to the scope of practice	Dom5.Com.7a	Apply knowledge of how 3D datasets are generated	
		Dom5.Com.7b	Apply knowledge of the use of 3D images for optimal diagnostic or therapy outcomes to confirm that appropriate data is obtained	
Dom5.Com.8	Apply knowledge of pharmaceuticals relevant to the scope of practice	Dom5.Com.8a	Apply knowledge of pharmaceuticals, pharmacodynamics and the potential range of reactions to drugs or agents relevant to the scope of practice	Must include relevant legislation regarding pharmaceutical administration
		Dom5.Com.8b	Apply knowledge for the delivery and administration of correct pharmaceuticals to patients relevant to the scope of practice	<p>Must include double checking products, confirming correct labelling, accurate calculations and measurements, correct route in accordance with organisational protocols and guidelines</p> <p>May include intravenous cannulation and/or administration of pharmaceuticals dependent on organisational protocols</p>

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Domain 5A: Medical Imaging Technologist

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5A.Com.1	Implement and evaluate general radiography examinations for a range of patient presentations and complexities	Dom5A.Com.1a	Apply knowledge of standard medical imaging projections and exposure factors for each body area and, when appropriate, modify them to take into account patient presentation, clinical indications and mechanisms of injury	
		Dom5A.Com.1b	Apply knowledge of human anatomy to position patients	
		Dom5A.Com.1c	Apply knowledge of the evaluation of medical images using medical imaging criteria	
Dom5A.Com.2	Implement fluoroscopy in a range of settings	Dom5A.Com.2a	Apply knowledge of digital image processing, including fixed and mobile digital fluoroscopy systems	
		Dom5A.Com.2b	Apply knowledge of patient preparation, care, and aftercare, and delivery systems for contrast examinations	
		Dom5A.Com.2c	Apply knowledge of the evaluation of images and apply radiographic criteria to these images	

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5A.Com.3	Demonstrates understanding of diagnostic computed tomography (CT) imaging as per mammography with list of specific examples	Dom5A.Com.3a	Demonstrate understanding of the use, design and operation of CT systems	
		Dom5A.Com.3b	Demonstrate understanding of imaging parameters and scan protocols based on the range of patient presentations	
		Dom5A.Com.3c	Demonstrate understanding of post-processing techniques, including multi-planar reformats and volume imaging	
Dom5A.Com.4	Implement and evaluate mammography examinations <i>When a practitioner is seeking registration to practise in mammography only, the practitioner will be required to <u>apply knowledge</u> in terms of the three competency indicators</i>	Dom5A.Com.4a	Demonstrate understanding of standard mammography examinations and when appropriate, modify them to take into account patient presentation and clinical indications	
		Dom5A.Com.4b	Demonstrate understanding of human anatomy to position patient to obtain optimal mammographic images	Must include signs and symptoms of breast pathology, additional projections, implant positioning techniques, best practice ergonomic techniques
		Dom5A.Com.4c	Demonstrate understanding of the evaluation of mammographic images using mammographic criteria	
Dom5A.Com.5	Safely manage radiation in the environment	Dom5A.Com.5a	Apply knowledge of the environmental risks of radiation	
		Dom5A.Com.5b	Apply knowledge of protocols and procedures in response to radiation incidents	Must include legislative requirement and accordance with organisational protocols
Dom5A.Com.6	Perform quality control procedures related to medical imaging practice	Dom5A.Com.6a	Apply knowledge of quality control to support safe medical imaging practice	Must include routine quality control processes in accordance with organisational protocols, and planned maintenance of equipment

Domain 5B: Nuclear Medicine Technologist

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5B.Com.1	Prepare and assess the purity of radiopharmaceuticals	Dom5B.Com.1a	Apply knowledge of the elution and quality control of a radioisotope generator	
		Dom5B.Com.1b	Apply knowledge of assaying the eluate and preparing radiopharmaceuticals ensuring critical procedure features are observed, such as correct volume	
		Dom5B.Com.1c	Apply knowledge of quality control on radiopharmaceuticals and assess for patient use	
Dom5B.Com.2	Explain the biodistribution and applications of radiopharmaceuticals including therapies	Dom5B.Com.2a	Demonstrate knowledge of the procedure of biodistribution, including determining whether it is normal, altered or unexpected	
Dom5B.Com.3	Perform routine nuclear medicine imaging (may include PET)	Dom5B.Com.3a	Apply knowledge of the technique appropriate to the examination	
		Dom5B.Com.3b	Apply knowledge of imaging projections and their application to each body area	
		Dom5B.Com.3c	Apply knowledge of standard and hybrid studies for the best diagnostic outcome for the patient	May include bone, myocardial perfusion, gated heart pool, lung perfusion/ventilation, thyroid, renal as well as oncology, cardiac, and neurology PET studies
		Dom5B.Com.3d	Apply knowledge of the evaluation of nuclear medicine images	Must include application of quality criteria to the images

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5B.Com.4	Perform computed tomography (CT) imaging for attenuation correction and anatomical fusion imaging	Dom5B.Com.4a	Apply knowledge of the use, design and operation of CT systems	
		Dom5B.Com.4b	Apply knowledge of imaging parameters, scan protocols and relative dose levels based on a range of patient presentations	
		Dom5B.Com.4c	Apply knowledge of anatomical/attenuation correction CT scan	
		Dom5B.Com.4d	Apply knowledge of post processing techniques, including multi-planar reformats, co-registration, and volume imaging	
Dom5B.Com.5	Perform nuclear medicine radioisotope examinations	Dom5B.Com.5a	Apply knowledge of dose and radioactive decay used in examinations and therapies	
		Dom5B.Com.5b	Apply knowledge of the difference between therapeutic and diagnostic doses as it affects the patient, health practitioner, and the general public	
		Dom5B.Com.5c	Apply knowledge of patient preparation, care, and aftercare, and delivery systems for nuclear medicine radioisotope examinations	
		Dom5B.Com.5d	Apply knowledge of appropriate dose delivery systems and safe aseptic techniques	May include arterial, oral, IV, subcutaneous, and inhalation in accordance with organisational protocols
Dom5B.Com.6	Demonstrate understanding of in vivo, mixed in vitro, and in vitro laboratory procedures	Dom5B.Com.6a	Demonstrate understanding of aseptic blood labelling procedures	
		Dom5B.Com.6b	Demonstrate understanding of in vivo, mixed in vitro, and in vitro laboratory procedures	
		Dom5B.Com.6c	Demonstrate understanding of methods to determine if results of laboratory procedures are normal, altered, or unexpected	

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5B.Com.7	Demonstrate understanding of nuclear medicine radioisotope therapies	Dom5B.Com.7a	Demonstrate understanding of dose and radioactive decay for therapeutic administrations	
		Dom5B.Com.7b	Demonstrate understanding of the principles underpinning nuclear medicine radioisotope therapies	
		Dom5B.Com.7c	Demonstrate understanding of patient preparation, care and aftercare, and delivery systems for nuclear medicine radioisotope therapies	
		Dom5B.Com.7d	Demonstrate understanding of appropriate dose delivery systems and safe, aseptic techniques	
Dom5B.Com.8	Perform quality control procedures related to nuclear medicine practice	Dom5B.Com.8a	Apply knowledge of quality control to support safe nuclear medicine practice	Must include routine quality control processes of medical imaging and laboratory equipment in accordance with legislation and organisational protocols
Dom5B.Com.9	Safely manage radiation and radioactivity in the environment	Dom5B.Com.9a	Apply knowledge of the environmental risks of manufactured radiation and radioactivity	
		Dom5B.Com.9b	Apply knowledge of safe and legal methods of handling, storage, and disposal	Must include shielding requirements
		Dom5B.Com.9c	Apply knowledge of protocols and procedures in response to radiation and radioactivity incidents	Must include legislative requirement and accordance with organisational protocols
Dom5B.Com.10	Consult and report	Dom5B.Com.10a	Apply knowledge of responsibilities for conveying information when significant findings are identified	Must include recognising normal and abnormal imaging appearances, relating appearances to the patient's clinical history, recognising the need for further sources of input, and record keeping in accordance with organisational protocols

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Domain 5C: Radiation Therapist

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5C.Com.1	Apply knowledge of immobilisation/positioning devices related to radiation therapy	Dom5C.Com.1a	Apply knowledge of immobilisation/positioning methods suitable for simulation, planning and treatment, and appropriate to the patient's condition and presentation	
		Dom5C.Com.1b	Apply knowledge of the immobilisation/positioning required for a particular radiation therapy procedure and/or treatment technique	
		Dom5C.Com.1c	Apply knowledge of the fabrication or adaptation of suitable immobilisation/positioning devices and ancillary equipment as required in radiation therapy	
		Dom5C.Com.1d	Apply knowledge of the limitations/restrictions in the use of immobilisation/positioning devices	
Dom5C.Com.2	Apply knowledge of treatment simulation techniques	Dom5C.Com.2a	Apply knowledge of physiology from an oncology perspective to evaluate images for patient	
		Dom5C.Com.2c	Apply knowledge of CT-based simulation as appropriate to the patient presentations and related planning procedures	
		Dom5C.Com.2d	Demonstrate understanding of the use of MRI and PET in simulation imaging	

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5C.Com.3	Apply knowledge of treatment planning	Dom5C.Com.3a	Apply knowledge of radiation physics and biology related to treatment planning	Must include imaging and treatment modalities used including CT, MRI, PET May include brachytherapy, superficial radiotherapy, radiosurgery/stereotactic radiotherapy, paediatric radiotherapy, total body radiation and proton therapy
		Dom5C.3b	Apply knowledge of generating and evaluating treatment plans	Must include awareness of tumour and target volumes, and normal tissue volumes
		Dom5C.Com.3c	Apply knowledge of the production of radiation therapy treatment plans using relevant protocols	May include 2D, 3D, and 4D, conformal radiation therapy (3D CRT), intensity-modulated radiation therapy (IMRT), and volumetric-modulated arc therapy (VMAT)
Dom5C.Com.4	Implement and deliver treatment techniques according to approved plans/prescriptions	Dom5C.Com.4a	Apply knowledge of the safe and effective use, design and operation of radiation therapy treatment systems	
		Dom5C.Com.4b	Apply knowledge of requirements for treatment delivery recording systems	May include MV, orthovoltage, brachytherapy
		Dom5C.Com.4c	Apply knowledge of the development of plans to demonstrate a range of treatment techniques	Must recognise a radical vs a palliative treatment and be familiar with dose limits to critical structures and may include 3D, 4D, SRS
		Dom5C.Com.4d	Apply knowledge of verification systems and their impact on treatment delivery	Must include imaging modalities and patient management systems which may include kV, MV, CBCT imaging, R and V system
Dom5C.Com.5	Safely manage radiation and radioactivity in the work environment	Dom5C.Com.5a	Apply knowledge of the environmental risks of radiation and radioactivity	
		Dom5C.Com.5b	Apply knowledge of safe and legal methods of handling, storage, and disposal	Must include shielding requirements
		Dom5C.Com.5c	Apply knowledge of protocols and procedures in response to radiation and radioactivity incidents	Must include legislative requirement and accordance with organisational protocols

Domain 5D: Sonographer

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5D.Com.1	Apply the principles and clinical applications of ultrasound imaging	Dom5D.Com.1a	Apply knowledge of the physics of ultrasound image acquisition	
		Dom5D.Com.1b	Apply knowledge of the clinical context for ultrasound imaging and ultrasound examinations including extending the examination to encompass all relevant areas	Must include patient preparation and the relationship of ultrasound to diagnostic radiography examinations using x-ray, CT, MRI and angiography
Dom5D.Com.2	Plan conduct and evaluate ultrasound examinations for a range of patient presentations and complexities as per organisational protocols	Dom5D.Com.2a	Apply knowledge of cross sectional anatomy, embryology, pathophysiology, haemodynamics, and sonographic appearances of normal and abnormal anatomy	Must differentiate pathophysiology from age-related adaptations and normal variants
		Dom5D.Com.2b	Apply knowledge of ultrasound imaging systems	Must include 2D, Doppler, instrumentation, and may include contrast and 3D where appropriate
		Dom5D.Com.2c	Apply knowledge of standard and non-standard techniques/images and instrumentation for each body area and, where appropriate, modify them to take into account patient presentation, clinical indications	
		Dom5D.Com.2d	Apply knowledge of relevant clinical information in order to inform the examination strategy and urgency	Must include evaluation of patient history
		Dom5D.Com.2e	Apply knowledge of physics and instrumentation to optimise images and identify artifacts	Must include distinguishing between technical artifacts and misleading appearances due to pathology
		Dom5D.Com.2f	Apply knowledge of the physics and bioeffects of ultrasound to minimise the likelihood of biological effects.	Must apply the ALARA principles in all examinations without compromising quality
		Dom5D.Com.2g	Apply knowledge of psychological and physical needs of the patient and/or their family/whanau specific to the ultrasound environment	May include fetal death/distress/abnormality, miscarriage, ectopic pregnancy, paediatrics, culture, before-during-and-after-care, basic wound care

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5D.Com.3	Utilise clinical judgement/decision-making to inform examination strategy and outcome	Dom5D.Com.3a	Apply knowledge of limitations when making judgements and seek expert advice where appropriate	
		Dom5D.Com.3b	Apply knowledge of extending or modifying the examination according to sonographic findings and clinical presentation	Must include assessment of the quality of images and clinical significance of abnormalities and revision of the examination strategy in response to sonographic appearances
		Dom5D.Com.3c	Apply knowledge of the principles of workload prioritisation according to clinical urgency	
Dom5D.Com.4	Consult and report	Dom5D.Com.4a	Apply knowledge to document the real time examination and critically evaluate findings using sonographic terminology	Must include organisational protocols, and still images/cine loops must accurately represent any pathology present
		Dom5D.Com.4b	Apply knowledge to confirm the examination addresses the clinical question and responsibilities for conveying significant findings	
Dom5D.Com.5	Perform quality control procedures related to sonographic practice	Dom5D.Com.5a	Apply knowledge of routine quality control procedures	Must include transducer, machine, monitor maintenance, PACS/archive monitor settings, and disinfection systems
		Dom5D.Com.5b	Apply knowledge to evaluate quality control systems and procedures, and implement remedial measures where necessary	
Dom5D.Com.6	Apply knowledge of infection control	Dom5D.Com.6a	Apply knowledge of routine equipment cleaning including machine, transducer, monitor, and cables	In accordance with organisational protocols
		Dom5D.Com.6c	Apply knowledge of standard precautions where clinically indicated	Must include use of clean/sterile gel, probe covers, as clinically indicated and in accordance with organisational protocols

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Domain 5E: MRI Technologist

Code	Key Competencies	Code	Competency Indicators	Notes
5E.1	Apply knowledge of the principles and clinical applications of MRI	Dom5E.Com.1a	Apply knowledge of MRI image acquisition	Must include image optimisation of technical parameters.
		Dom5E.Com.1b	Apply knowledge of clinical decision-making in the context of the patient and requirement to adapt technique to the clinical question	
		Dom5E.Com.1c	Apply knowledge of clinical applications and imaging protocols in the context of MRI examinations	
5E.2	Implement and evaluate MRI examinations for a range of patient presentations and complexities	Dom5E.Com.2a	Apply knowledge of the use, design and operation of MRI systems	
		Dom5E.Com.2b	Apply knowledge of protocol and imaging parameters based on a range of patient presentations	Must include interpretation of requests and application of physical principles and clinical applications of MRI knowledge
		Dom5E.Com.2c	Apply knowledge of psychological and physical needs of the patient specific to the MRI environment	Must include claustrophobia, sedation, prosthetics, paediatrics, cultural, before-during-after care
		Dom5E.Com.2d	Apply knowledge of anatomy, physiology, pathophysiological and MRI appearances of abnormal anatomy and pathophysiology	Must include evaluation of different signal characteristics for individual pathologies and sequences, artifact recognition, and application of techniques to reduce artifacts
		Dom5E.Com.2e	Apply knowledge to modify imaging parameters to achieve optimal diagnostic outcomes	
		Dom5E.Com.2f	Apply knowledge to modify the examination according to MRI findings and clinical presentation, where appropriate	
		Dom5E.Com.2g	Apply knowledge to critically evaluate a range of standard MRI procedures including contrast-enhanced studies	Must include understanding of MRI contrast agents, selection of appropriate contrast agents, and application of knowledge on contrast agents with particular regard to safety
		Dom5E.Com.2h	Apply knowledge of post-processing techniques	Must include 3D data set manipulation, subtraction and multi-planar reformatting

Code	Key Competencies	Code	Competency Indicators	Notes
Dom5E.Com.3	Consult and report	Dom5E.Com.3a	Apply knowledge of responsibilities for conveying information when significant findings are identified	Must include recognising and applying knowledge of normal from abnormal imaging appearances, relating appearances to the patient's clinical history, and recognising the need for further sources of input.
		Dom5E.Com.3b	Apply knowledge of the recognition and response to a patient's deteriorating condition or inability to undergo a procedure or treatment, consistent with duty of care and statutory requirements	
Dom5E.Com.4	Manage all aspects of safety in the MRI environment	Dom5E.Com.4a	Apply knowledge of the physical principles of MRI and surrounding environment to ensure patient and personnel safety at all times	Must include static magnetic field, radio-frequency field, time-varying fields, implants/devices, thermoregulatory compromise, acoustic noise and biological effects
		Dom5E.Com.4b	Apply knowledge of protocols and procedures to ensure safety in the MR environment and in response to MRI incidents	Must include assessment of implants/foreign bodies
Dom5E.Com.5	Perform quality control procedures related to MRI practice	Dom5E.Com.5a	Apply knowledge of quality control within the MRI environment	Must include identifying trends
		Dom5E.Com.5b	Apply knowledge of the recognition and reporting of equipment faults in accordance with organisational protocol	Must include scanner, coils, monitors and scales. May include injector, pulse oximeter, ancillary equipment

Competency Indicators		Notes	
Demonstrate Understanding	Understanding underpinning knowledge relating to practice. Does not necessarily undertake the procedures	Must	All in the list are mandatory to be assessed against
Apply Knowledge	Needs detailed knowledge that is applied within practice	May	Any in list can be included to be assessed against but not all are mandatory

Appendix 1: Definitions of Medical Imaging and Radiation Therapy Practice

Description of Medical Imaging and Radiation Therapy

Medical radiation technology is a patient centred profession that encompasses the practices of medical imaging and radiation therapy. Medical imaging practitioners use different technologies to create images of the human body for diagnosis and the staging and management of disease. Radiation therapy practitioners use technology to create and evaluate images and data related to the localisation, planning and delivery of radiation treatments.

Medical Imaging Technologists

Medical Imaging Technologists are responsible for the outcome of the diagnostic imaging examination. The outcome of the examination is recorded electronically to allow for consultation with other health and medical practitioners.

Medical Imaging Technologists produce high quality diagnostic radiographs or carry out diagnostic procedures using ionising radiation. With appropriate training, Medical Imaging Technologists may practise computed tomography (CT), mammography, and angiography. Medical Imaging Technologists evaluate the diagnostic quality of images and take corrective measures as required.

Medical Imaging Technologists competencies include, but are not limited to, patient care, patient positioning, imaging physics and technology, anatomy and physiology identification and assessment, bioeffects and radiation safety, clinical and organisational responsibility for the examination, and quality assurance.

Nuclear Medicine Technologists

Nuclear Medicine Technologists are responsible for the outcome of the nuclear medicine examination. The outcome of the examination is recorded electronically to allow for consultation with other health and medical practitioners.

Nuclear Medicine Technologists are involved in the preparation, administration, imaging and quantification of diagnostic pharmaceuticals to demonstrate organ and molecular function as well as the delivery of therapeutic radiopharmaceuticals to treat a number of pathologies.

Nuclear Medicine Technologists operate gamma camera systems (SPECT) and PET imaging systems with or without sealed sources of radioactive materials or x-ray tubes for attenuation correction, anatomical fusion, transmission imaging or, subsequent to a Board-approved training programme, diagnostic CT.

Nuclear Medicine Technologists' competencies include, but are not limited to, patient care, patient positioning, preparation and administration of radiopharmaceuticals, radionuclide and radiation safety, in-vitro diagnostic testing, radionuclide therapy, clinical and organisational responsibility for the examination, and quality assurance.

Radiation Therapists

Radiation Therapists are responsible for the planning and delivery of radiation treatment, primarily for people diagnosed with cancer. Radiation Therapists create and evaluate images for the localisation, planning and delivery of radiation treatment according to the prescription of the Radiation Oncologist.

Radiation Therapists provide specific care to patients throughout the course of their treatment and educate patients on the management of any treatment related side-effects.

Radiation Therapists' competencies include, but are not limited to, patient care, treatment design and delivery, radiation safety, clinical and organisational responsibility for the planning and treatment, and quality assurance.

Sonographers

Sonographers are responsible for the outcome of the diagnostic ultrasound examination. The outcome of the examination is recorded electronically to allow for consultation with other health and medical practitioners.

Sonographers perform a wide range of real-time diagnostic examinations and may at their discretion (and in accordance with clinical and workplace guidelines) extend the examination to include relevant regions and/or sequences not suggested in the referral.

Sonographers' competencies include, but are not limited to, patient care, ultrasound physics and technology, anatomy and physiology identification and assessment, diagnostic interpretation of the ultrasound findings, bioeffects and the use of ultrasound technology, clinical and organisational responsibility for the examination, and quality assurance.

Magnetic Resonance Imaging (MRI) Technologists

MRI Technologists are responsible for the outcome of the MRI examination. The outcome of the examination is recorded electronically to allow for consultation with other health and medical practitioners.

MRI Technologists produce high quality diagnostic images using a powerful magnetic field. MRI Technologists may at their discretion (and in the accordance with clinical and workplace guidelines) extend the examination to include relevant regions and/or sequences not suggested in the referral or protocol.

MRI Technologists' competencies include, but are not limited to, patient care, patient positioning, use of magnetic resonance imaging physics and technology, bioeffects and magnetic resonance safety, clinical and organisational responsibility for the examination, and quality assurance.

Trainee Nuclear Medicine Technologists

Suitably qualified registered health practitioners can apply for registration as a Trainee Nuclear Medicine Technologist in an approved training programme in nuclear medicine. Upon completion of the nuclear medicine training programme, and meeting the requirements for demonstrating clinical competence, the Trainee Nuclear Medicine Technologist is eligible to apply for registration in the scope of practice of Nuclear Medicine Technologist.

Trainee Sonographers

Suitably qualified registered health practitioners can apply for registration as a Trainee Sonographer in an approved training programme in ultrasound. Upon completion of the ultrasound training programme, and meeting the requirements for demonstrating clinical competence, the Trainee Sonographer is eligible to apply for registration in the scope of practice of Sonographer

Trainee Magnetic Resonance Imaging (MRI) Technologists

Suitably qualified registered health practitioners can apply for registration as a Trainee MRI Technologist in an approved training programme in MRI. Upon completion of the MRI training programme, and meeting the requirements for demonstrating clinical competence, the Trainee MRI Technologist is eligible to apply for registration in the scope of practice of MRI Technologist.

Appendix 2: Competencies Review Workshop Participants (June 2016)

Name	Scope of Practice
Leah Armstrong	Medical Imaging Technologist
Claire Londahl	Medical Imaging Technologist/Manager
Angela Fuller	Medical Imaging Technologist/Manager
Peter Seager	Medical Imaging Technologist/Manager
Zia Brown	MRI Technologist
Peter Dooley	MRI Technologist
Shelley Park	MRI Technologist/Educator
Tisza Sargeant	Nuclear Medicine Technologist
Berry Allen	Nuclear Medicine Technologist
Karen Wiki	Nuclear Medicine Technologist/Educator
Shelley Donnell	Radiation Therapist
Kathryn Neilson	Radiation Therapist
Gillian Whalley	Sonographer
Carol Bagnall	Sonographer
Karen Wallis	Sonographer/Educator
Medical Radiation Technologists Board	Scope of Practice/Position
Beryl Kelly	Medical Imaging Technologist
Lizzie Macaulay	Medical Imaging Technologist
Angie Slocombe	MRI Technologist
Prue Lamerton	Nuclear Medicine Technologist
Billie Mudie	Radiation Therapist/Educator
Louise Tarr	Sonographer
Megan Campbell	Lay Member
Mary Doyle	CEO/Registrar