New Zealand
Medical Radiation
Technologists Board
Te Poari Ringa Hangarau Iraruke

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

Consultation

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INTRODUCTION

Welcome to this revised edition of the competence standards for Medical Imaging and Radiation Therapy practitioners in Aotearoa New Zealand. The standards are set by the Medical Radiation Technologists Board (the Board) under the Health Practitioners Competence Assurance Act 2003 (the Act). The Board's primary role is to protect 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' professional competence is a core function of the Board's responsibilities.

The competence standards need to be kept abreast of the practice of medical imaging and radiation therapy especially as the technologies change and evolve over time. To reflect these changes, the competence standards need to be dynamic and reviewed regularly.

The Board published the revised standards in 2022 and since that time it has been brought to its attention that there is a need for some minor changes to them. As with the previous versions, this iteration aims to improve the clarity and flow of the standards and consequently their efficacy.

We have amalgamated the previous 'generic' domains into two new core domains that are applicable to all medical imaging and radiation therapy practitioners irrespective of their scope of practice. The expression of these generic domains closely reflects similar domains and competencies as adopted by other New Zealand responsible authorities. This is appropriate as professionalism and communication and collaboration are applicable to all healthcare professionals no matter the focus of their area of health practice. Alignment of these competence domains with those of other responsible health authorities serves to promote interdisciplinary collaboration across groups of health professionals.

While the domains for each of the five scopes of practice remain, many of the competencies contained within each of those domains have been re-grouped.

A key change to this version of the competence standards has been to rephrase the previous 'notes' section into a series of guiding statements attached to each of the domains. This reflects a move away from evidence-based examples aligned to the various competencies, to providing statements intended to assist practitioners with interpreting the competencies and behaviours. This is more helpful to practitioners when individualising their examples of evidence to the role and practice setting in which they work. Throughout their careers many medical imaging and radiation therapy practitioners will change roles without necessarily changing practice settings. Consequently, the evidence provided to demonstrate competence over time should also change.

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COMPETENCE STANDARDS FRAMEWORK

Professional competence is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.[1]

Competence standards specify the application of a practitioner's knowledge and skills to the standards of performance required of them in a practice setting. They enable the practitioner to practise effectively and safely as a medical imaging or radiation therapy practitioner. A cornerstone of competence standards is their capacity to support professional practice and growth.

While the standards set out in this document are expressed as entry-level competencies and behaviours, it is expected that all registered practitioners will build on these, as the behaviours of an experienced practitioner will exceed this level. The standards express the minimum knowledge, skills, and professional attributes necessary for practice. During any one procedure it is expected a practitioner will demonstrate elements of practice across the broadly defined domains of competence. 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.

Competence standards demonstrate to the public and other healthcare professionals the key expertise that medical imaging and radiation therapy practitioners bring to patient care, and their role in ensuring the safe and responsible use of imaging technologies.

Taken together, the core elements of the competence standards – that is the knowledge, skills, attitudes, and behaviours a practitioner develops through education, training, and work experience – form a competence framework that provides a map for describing the competencies and behaviours expected of medical imaging and radiation therapy practitioners in their daily practice.

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[1] *Epstein RM, Hundert E. Defining and assessing professional competence. JAMA, 2022; 287(2): 226-235*

CONTEXT OF THE COMPETENCE STANDARDS

There are common competence standards required of healthcare practitioners across many health professions. The competence framework adopted by the Board recognises this by allowing for universal application across all settings, while also having sufficient focus to allow for the competencies specific to medical imaging and radiation therapy practitioners.

Medical imaging and radiation therapy practitioners in Aotearoa New Zealand practice within a legislated regulatory environment under the Act. Practitioners practise within the parameters of one or more scopes of practice, which serve to protect the health and safety of the public through the use of protected professional titles.

The following professional titles can only be used by practitioners who hold current registration with the Board:

- Magnetic Resonance Imaging Technologist (MRIT)
- Medical Imaging Technologist (MIT)
- Nuclear Medicine Technologist (NMT)
- Radiation Therapist (RT)
- Sonographer.

APPLICATION OF THE COMPETENCE STANDARDS

The competence standards have been designed to be sufficiently flexible and versatile, to be relevant to a variety of stakeholders.

The competence standards provide a reference point for the Board when exercising their statutory functions under the Act.

Practitioners should use the standards to guide their professional development, including using a reflective approach based on the skills and competencies required for their professional practice.

Education providers are expected to use the competencies to inform the development of graduate curricula. This assists new registrants in understanding the professional competencies required of them for registration.

The competence standards provide a useful benchmark for other healthcare professionals, policymakers, members of the public and others, of the key competencies associated with and expected of medical imaging and radiation therapy practitioners.

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STRUCTURE OF THE COMPETENCE STANDARDS

The framework consists of seven **domains**, each with several **competencies**. Each competency then expresses various **behaviours** that indicate how practitioners are expected to demonstrate that competency in their professional practice. A set of **guiding** statements gives an overall context of each domain to assist practitioners with the interpretation of the competencies and behaviours.

Two of the domains – *Professionalism; Communication and Collaboration* - apply to all medical imaging and radiation therapy practitioners irrespective of their scope of practice. The remaining five domains are specific to each of the scopes of practice defined for medical imaging and radiation therapy practice in Aotearoa New Zealand.

Domain title

The broad area of professional responsibility.

Example

Domain 1: Professionalism

Scope

An explanation of the scope and context of the domain.

Example

The domain includes the behaviours expected of medical imaging and radiation therapy practitioners in maintaining and extending their professional competence, and in understanding that professional development is critical to advancing their practice.

Professionalism encompasses attitudes, knowledge, and skills based on clinical competence, ethics, societal, and legal requirements that individually and collectively result in the application of a range of behaviours.

Cultural competence, clinical competence, and ethical conduct are cornerstones of professional practice.

Cultural competence is more than an awareness of or sensitivity to another culture – it requires practitioners to examine themselves and the potential impact of their own culture on clinical interactions and healthcare service delivery.

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Competency and behaviours

Activities or processes related to the overall expectation of the domain.

Example

Competency	**1.1**	**Practise within ethical and legal requirements**
Behaviours	**1.1.1**	Understand and explain the rationale and application of regulations that impact on medical imaging and radiation therapy practice
	1.1.2	Comply with legislative requirements as applicable to medical imaging and radiation therapy practice
	1.1.3	Demonstrate a sound knowledge and understanding of the ethical principles and values that underpin the medical imaging and radiation therapy professions

Terminology

Please note the term 'patient' used throughout this document includes patients themselves, whānau/family members, carers and/or support people.

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Domains overview

Domain		Competency	
1	**Professionalism**	1.1	Practise within ethical and legal requirements
		1.2	Demonstrate personal and professional integrity
		1.3	Contribute to quality management
		1.4	Practise medical imaging/radiation therapy within the cultural diversity of Aotearoa New Zealand
		1.5	Understand Hauora Māori
		1.6	Make effective decisions
2	**Communication and collaboration**	2.1	Communicate effectively
		2.2	Establish and maintain collaborative working relationships
		2.3	Supervise and support colleagues
		2.4	Facilitate education of colleagues
		2.5	Recognise and resolve conflict
3	**Medical Imaging practice**	3.1	Review and manage a patient's medical imaging requirements
		3.2	Provide medical imaging requirements
		3.3	Deliver safe and quality medical imaging services
		3.4	Application and evaluation of medical imaging clinical practice
4	**Magnetic Resonance Imaging practice**	4.1	Review and manage a patient's MR imaging requirements
		4.2	Provide MR imaging requirements
		4.3	Deliver safe and quality MR imaging services
		4.4	~~Access, evaluate, and provide MRI information~~ Application and evaluation of magnetic resonance imaging clinical practice
5	**Nuclear Medicine practice**	5.1	Review and manage a patient's nuclear medicine imaging requirements
		5.2	Provide nuclear medicine imaging requirements
		5.3	Deliver safe and quality nuclear medicine imaging services
		5.4	Application and evaluation of nuclear medicine clinical practice.

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Domain		Competency	
6	**Radiation Therapy practice**	6.1	Review and manage patient's radiation therapy requirements
		6.2	Provide radiation therapy requirements
		6.3	Deliver safe and quality radiation therapy services
		6.4	Application and evaluation of radiation therapy clinical practice
7	**Sonography practice**	7.1	Review and manage patient's sonography imaging requirements
		7.2	Provide sonography imaging requirements
		7.3	Deliver safe and quality sonography imaging services
		7.4	Application and evaluation of sonography clinical practice

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The competence standards

Domain1: Professionalism

Scope

The domain includes the behaviours expected of medical imaging and radiation therapy practitioners in maintaining and extending their professional competence, and in understanding that professional development is critical to advancing their practice.

Professionalism encompasses attitudes, knowledge, and skills based on clinical competence, ethics, societal, and legal requirements that individually and collectively result in the application of a range of behaviours.

Cultural competence, clinical competence, and ethical conduct are cornerstones of professional practice.

Cultural competence is more than an awareness of or sensitivity to another culture – it requires practitioners to examine themselves and the potential impact of their own culture on clinical interactions and healthcare service delivery.

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Competencies and behaviours

Competency	**1.1**	**Practise within ethical and legal requirements**
Behaviours	1.1.1	Demonstrate understanding of the rationale, and application of regulations, that impact on medical imaging and radiation therapy practice
	1.1.2	Comply with legislative requirements as applicable to medical imaging and radiation therapy practice
	1.1.3	Demonstrate a sound knowledge and understanding of the ethical principles and values that underpin the medical imaging and radiation therapy profession
	1.1.4	Comply with the obligations of the Board's Code of Ethical Conduct policy
	1.1.5	Demonstrates a sound knowledge of informed consent principles and processes and ensures that patients have information to make informed decisions
Competency	**1.2**	**Demonstrate personal and professional integrity**
Behaviours	1.2.1	Apply principles of patient-centred care to all aspects of their medical imaging and radiation therapy practice
	1.2.2	Recognise and uphold the trust placed in them as healthcare professionals
	1.2.3	Accept responsibility and accountability for their professional practice
	1.2.4	Treat people with respect, empathy, dignity, and sensitivity
	1.2.5	Demonstrate safety of practice by practising within limits of their own professional expertise and competencies within their relevant scope of practice
	1.2.6	Demonstrate collegial behaviours with colleagues and other health professionals which includes respect, sharing of professional strengths and manaakitanga
	1.2.7	Actively engage in continuing professional development (CPD) and lifelong learning
Competency	**1.3**	**Contribute to quality management**
	1.3.1	Recognise quality as a core principle of healthcare provision

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Behaviours	1.3.2	Contribute to the quality improvement of medical imaging and radiation therapy services, utilising investigation and applied research as appropriate
	1.3.3	Participate in regular evaluation activities relevant to own practice, and act upon findings in a timely and responsive way
	1.3.4	Maintain and develop knowledge, understanding and skills in line with their practice and role, including in response to changes in patient need, the evidence base, technological advances, and service requirements
Competency	**1.4**	**Practise medical imaging/radiation therapy within the cultural diversity of Aotearoa New Zealand**
Behaviours	1.4.1	Demonstrate understanding of the impact their own identity, inclusive of cultural values, has on their medical imaging or radiation therapy practice
	1.4.2	Reflect on own cultural values to determine the impact on others
	1.4.3	Identify and value the cultural diversity within their area of medical imaging and radiation therapy practice
	1.4.4	Demonstrate respect of others, both individually and collectively
	1.4.5	Demonstrate understanding of the impact of culture on health status and the maintenance of health
	1.4.6	Recognise inequities in the health status for Māori, Pasifika, disabled and other marginalised groups and incorporate strategies into own practice to contribute towards addressing those
Competency	**1.5**	**Commitment to Hauora Māori**
Behaviours	1.5.1	Understand and describe the relevance of Te Tiriti o Waitangi
	1.5.2	Demonstrate understanding of Māori perspectives of health
	1.5.3	Attempt to pronounce te reo Māori correctly, particularly people's names and places, and understand common greetings and words and use as appropriate
	1.5.4	Recognise institutional racism and demonstrate a commitment to challenging racism and unconscious bias
	1.5.5	Understand the importance of tikanga and have knowledge of core aspects of tikanga and kawa
Competency	**1.6**	**Make effective decisions**
Behaviours	1.6.1	Demonstrate ability to make accurate, evidence-based, and timely decisions

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	1.6.2	Identify issues of importance and prioritise the resolution of those
	1.6.3	Actively listen when decisions are questioned and demonstrate an openness to other advice
	1.6.4	Recognise when it is appropriate to collaborate with and include others in making decisions, or to refer decisions on
	1.6.5	Articulate reasoning for decisions.

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Guidance: Professionalism

Practising professionally is an expectation of all healthcare practitioners. As a provider of core health services, medical imaging and radiation therapy practitioners hold a privileged position through the trust placed in them by the public, patients and their support networks, and service users. This requires practitioners to 'give back' through behaviours and attitudes that demonstrate professional integrity and respect for the dignity of others. This is key to upholding the good standing and reputation of the medical imaging and radiation therapy profession.

Professionalism encompasses an expectation that practitioners will practice both within ethical and legal boundaries. Knowledge of key New Zealand legislation and regulations includes (but is not limited to) the Health Practitioners Competence Assurance Act 2003, the Radiation Safety Act 2016, the Privacy Act 2020, and the Code of Health and Disability Services Consumers' Rights Regulations 1996. Practitioners need to have a working knowledge of these key pieces of legislation and how to apply them to their professional practice. As an example, practitioners are expected to understand their mandatory and voluntary reporting obligations.

The Board's *Code of Ethical Conduct for Medical Imaging and Radiation Therapy Practitioners in Aotearoa New Zealand* is a core reference for practitioners in respect of meeting the professional practice competencies. The Code articulates the values fundamental to the practice of medical imaging and radiation therapy in Aotearoa New Zealand. Being professionally accountable for their practice requires practitioners to take responsibility for their actions (or inactions). The Code provides a set of principles that should be the basis for making decisions and can be especially relevant in situations where there is a conflict of interest or competing professional responsibilities.

Professionalism extends beyond the workplace to all situations where a practitioner's actions, manner, and regard for others may be noted. This is inclusive of practitioners' activity in all forms of social media. While practitioners have a fundamental right to take advantage of the many professional and personal benefits offered through social media, it is equally important to be aware of the potential risks involved. Practitioners must be aware of the Board's *Social Media and Electronic Communication* policy.

Continuing professional development is fundamental to professional practice. To remain professionally competent, practitioners must continually update their skills and knowledge. This involves staying abreast of trends and evolving technologies in medical imaging and radiation therapy practice through continuing professional development and lifelong learning.

Aotearoa New Zealand is a culturally diverse society that requires practitioners to understand the impact their own identity and cultural values, has on their medical imaging and radiation therapy practice.
Practitioners should recognise that sometimes there may be conflict between their own cultural values and those of others. Practitioners need to demonstrate competence in interacting with people whose culture differs from their own.

Culture is more than ethnicity or race, it includes (but is not limited to) age, gender, sexual orientation, socioeconomic status (including occupation), religion, physical mental or other physical

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and/or neurological diversity, and organisational culture. Respecting others from a cultural perspective, both individually and collectively, requires practitioners to avoid stereotyping and being aware that general cultural information may not apply to specific individuals.

Practitioners must understand, and be able to explain different concepts of health, and use this understanding to help achieve optimal medical imaging and radiation therapy outcomes for all patients. Recognition and acknowledgment of individuals' rights to have health beliefs and practices different to those of the practitioner is a fundamental concept of professional practice.

Health practitioners have an obligation to recognise the unique place of Māori as tangata whenua of Aotearoa New Zealand. Learning about the impact of pre-and post-Te Tiriti o Waitangi events on the health of New Zealanders, and developing working relationships with key Māori stakeholders where appropriate, will provide background to help improve Māori health outcomes. This includes developing a contemporary understanding of Te Tiriti o Waitangi through application of the principles of Tino Rangatiratanga (self determination) Pātuitanga (partnership), Mana Taurite (equity), Whakamarumarutia (active protection) and Kōwhiringa (options). When developing medical imaging and radiation therapy examination strategies for Māori, practitioners should use their knowledge of Māori models of health and core Māori practices, including tikanga and kawa, to improve relationships and health outcomes.

Medical imaging and radiation therapy practitioners have an obligation to maintain a focus on the quality of the medical imaging and radiation therapy services provided, irrespective of their area(s) of practice. Contributing to quality management is more than having a vision of continuous service improvement – practitioners need to know what is required to make the vision a reality. Practitioners should have an awareness of appropriate tools and methods to evaluate the quality of their clinical and professional practice and to optimise outcomes and minimise risks to service users. This includes not only having an understanding of local policy and practice, but also national quality and safety frameworks that guide best practice.

Clinical governance is fundamental to quality management. It encompasses three key attributes of high standards of care, responsibility and accountability for those standards, and a constant dynamic of improvement. This requires medical imaging and radiation therapy practitioners to be accountable, take professional responsibility, have the right systems and processes in place, and continually improve what they do.

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Domain 2: Communication and collaboration

Scope

This domain addresses both a practitioner's ability to effectively communicate in English and their ability to create, maintain, and enhance working relationships with colleagues to provide a mutually supportive environment.

The Act requires health practitioners to communicate in, and comprehend English, to a level that is sufficient to protect the health and safety of the public. Medical imaging and radiation therapy practitioners must communicate effectively, inclusive of verbal, non-verbal, electronic, and written communication.

Effective communication is about the person receiving the communication getting the intended message. It enables shared decision-making with patients and/or their support network, with colleagues and with other healthcare professionals.

Effective communication is critical to effective collaboration and teamwork. Medical imaging and radiation therapy is not practiced in isolation, and intra-inter-and-multi disciplinary collaboration is essential to gaining the best health outcomes for the patient. Medical imaging and radiation therapy practitioners must recognise the roles and skills of other health professionals, and seek to work cooperatively with all colleagues based on an understanding and respect for each other's roles.

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Competencies and behaviours

Competency	**2.1**	**Communicate effectively**
Behaviours	2.1.1	Understand, speak, and write proficiently in English for the purpose of practising as a medical imaging and radiation therapy practitioner, including medical terminology
	2.1.2	Use active and reflective listening techniques to ensure the person receiving the communication is both understood and understands
	2.1.3	Recognise and respect cultural diversity when communicating with people
	2.1.4	Adapt communication, including verbal, non-verbal, and written, to suit the person receiving that information, and check their understanding
	2.1.5	Facilitate communication in appropriate settings to minimise disruptions while maintaining verbal, auditory, and personal privacy
	2.1.6	Respond in a timely manner
	2.1.7	Demonstrate effective professional technical writing
Competency	**2.2**	**Establish and maintain collaborative working relationships**
Behaviours	2.2.1	Act with integrity with colleagues and other healthcare professionals respecting individual, and cultural differences
	2.2.2	Identify key partners within own area of practice and establish connections to build relationships and mutual trust
	2.2.3	Promote the role, responsibilities, and expertise of medical imaging and radiation therapy practitioners in relation to the healthcare team
Competency	**2.3**	**Supervise and support colleagues**
Behaviours	2.3.1	Contribute to and support workplace training and mentoring
	2.3.2	Take responsibility for supervising, mentoring, and contributing to collegial performance assessments where appropriate
	2.3.3	Define and communicate delegated activities and the expected outcomes to the supervisee

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Competency	**2.4**	**Facilitate education of colleagues**
Behaviours	2.4.1	Promote and support learning opportunities to enhance the practice of colleagues, medical imaging and radiation therapy students, and other healthcare professionals
	2.4.2	Use educational content that is current and evidence-based
	2.4.3	Use appropriate tools and strategies to assess learning and provide feedback where required
Competency	**2.5**	**Resolve situations of conflict**
Behaviours	2.5.1	Identify the nature of the conflict, deescalate, and act appropriately to manage it through appropriate channels
	2.5.2	Work collaboratively to identify and agree the best approach and to review the impact of actions taken

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Guidance: Communication and collaboration

Communication is critical to establishing a rapport with patients to gain understanding of their issues and perspectives. Being aware of the ways one's own culture and experience affects interpersonal style, is fundamental to practitioners using strategies to ensure these do not impede the effectiveness of their communication with patients and their support networks, colleagues, and other healthcare providers.

Effective communication is more than the spoken and written word. Active listening, adapting language and detail to meet the needs of the recipient, use of verbal and non-verbal cues and language, can assist with confirming the other person(s) is understood and understands.

Effective communication encompasses many skills, some of those being:

- Questioning and exploring
- Listening, with active and reflective listening showing genuine respect and interest for the patient. It includes both verbal and non-verbal aspects
- Feedback, ensuring the message is understood. Can include asking appropriate questions so the person demonstrates their understanding of the practitioner's explanations
- Empathy, to gain an understanding of the perspectives of others
- Explaining
- Overcoming physical and emotional barriers to effective communication such as speech difficulties, and health literacy
- Negotiating
- Positive effective persuasion
- Informed consent
- Using plain language (avoiding the use of colloqueilisms, slang, acronyms – unless spelt out in the first instance)

Communicating with patients goes beyond the individual and you will need to consider the needs of others supporting the person, including (but not limited to) whānau/family, carers, guardians, advocates, and interpreters.

Informed consent is an important aspect of a practitioner's communication with patients and their support networks. It enables the patient to use knowledge and understanding of the benefits and the risks involved, to make voluntary decisions about their healthcare.

Written communication can take many forms such as emails, memos, referrals, appraisals, labels, and instructions. Whatever the form, written communication must be structured and presented in ways appropriate for each situation, and to meet the needs of the recipient.

Good communication is fundamental to building trust, supporting, motivating, both with patients and professional colleagues. Practitioners need to adapt their communication styles to work through situations in practice. The most desirable contribution requires practitioners to communicate relevant information clearly and concisely, and to maintain a good rapport with patients and their

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support networks, with professional colleagues, and with other service users.

The correct pronunciation of names is important to showing respect for all cultures, as is understanding and being able to avoid communication styles (both verbal and non-verbal) that might give offence. Whenever possible, kanohi ki te kanohi (face to face) communication should be used with Māori.

Medical imaging and radiation therapy practitioners typically work in environments that include others and it is therefore important for them to be 'team players'. This includes understanding the roles and responsibilities of other team members and how teams work. Improving outcomes for patients is dependent on practitioners respecting the contributions and skills of colleagues, patients, and other healthcare professionals.

Conflict is experienced to some extent in all workplaces and can arise both within and across teams. Conflict occurs when there are opposing views, interests, or ideas. It can generate tension with subsequent impact on wellbeing and work performance. Practitioners will need to be able to recognise and manage conflict in constructive ways, recognising that complete resolution will not always be possible. In understanding that, and depending on the circumstances, seeking additional guidance or support to resolve the conflict will be important.

Supporting and supervising colleagues in the workplace is part of this domain. This includes supervising the work of students, other medical imaging and radiation therapy practitioners, or that of support staff. In this capacity, practitioners are expected to assist with and support the performance of the supervised personnel.

Education is also a component of this domain. Sitting outside formal tertiary education or study, education in this context relates to graduate practitioners having a responsibility to assist with the education and training of future generations of medical imaging and radiation therapy practitioners. It is not only about imparting knowledge to others, but it also offers opportunities for practitioners themselves to gain new knowledge and sharpen their existing skills. Education of colleagues is inclusive of others in the wider healthcare team where medical imaging and radiation therapy practitioners use their specific knowledge and skills to enhance the knowledge and skills of others.

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Domain 3: Medical Imaging practice

Scope

The primary role of a Medical Imaging Technologist (MIT) is to acquire technically adequate radiographic images and to ensure patient safety during the process. Some technologists may have additional roles such as the administration of contrast media and assisting with interventional procedures.

Medical Imaging Technologists produce high quality images and carry out diagnostic imaging and interventional procedures using ionising radiation. Evaluation of the diagnostic quality of images and taking any necessary corrective measures are fundamental components of medical imaging practice. Medical imaging practice can extend beyond general imaging and fluoroscopy to encompass computed tomography (CT), mammography, and angiography.

This domain articulates the clinical competencies required of practitioners to practise as a medical imaging technologist in Aotearoa New Zealand.

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Competencies and behaviours

Competency	**3.1**	**Review and manage a patient's imaging requirements**
Behaviours	3.1.1	Obtain and assess patient's appropriate clinical history, referral, and current medical information to confirm the requested procedure is appropriate
	3.1.2	Consider information collected during initial consultation with a patient to assist with deciding the appropriateness of the requested imaging procedure
	3.1.3	Use appropriate sources to obtain or clarify additional relevant clinical information
	3.1.4	Determine appropriate adjustments to procedures and communicate those to the patient and/or referring clinician/radiologist
Competency	**3.2**	**Provide medical imaging procedures**
Behaviours	3.2.1	Perform a range of medical imaging procedures, which can include general x- ray, fluoroscopy, angiography, and mammography
	3.2.2	Prepare and support the patient during the procedure to optimise the outcome of the imaging procedure
	3.2.3	Apply knowledge of pharmaceuticals relevant to the medical imaging procedure
	3.2.4	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
	3.2.5	Demonstrate an understanding of diagnostic Computed Tomography (CT) imaging
Competency	**3.3**	**Deliver safe and quality medical imaging services**
Behaviours	3.3.1	Safely manage radiation to protect the safety of the patient, self, and others in the work environment
	3.3.2	Identify and manage safety requirements related to the use of ionizing radiation in the medical imaging procedure
	3.3.3	Effectively use operating equipment and ensure it is in good working order and operating within acceptable parameters
	3.3.4	Understand and apply quality control processes to medical imaging practice including quality control of equipment
	New	Use infection control measures to protect the safety of the patient, self and others in the work environment.

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Competency	3.4	Application and evaluation of medical imaging clinical practice
Behaviours	3.4.1	Understand concepts and terminologies to enable critical analysis of clinical information and use to resolve challenges using evidence-based practice
	3.4.2	Systematically clarify and evaluate requests for information, seeking further input if required
	3.4.3	Assess and reconcile different or conflicting information to form a professional opinion, including seeking further information as required
	3.4.4	Effectively use systems to record accurate, complete, and timely patient information, maintaining privacy and security of information
	3.4.5	Understand research methods; and participate in department audit and research as appropriate
	New	Apply knowledge of pathophysiology, anatomy and radiobiological principles.

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Guidance: Medical Imaging practice

Medical imaging practice requires practitioners to apply their knowledge of human anatomy, including the pathophysiology underpinning disease and injuries affecting the human body. Knowledge of anatomical structures, injuries and pathologies of the human body are applied in dynamic, planar, sectional, and 3D images.

Practitioners need to have a sound knowledge of medical imaging equipment and the principles of medical imaging physics. Within the practice of medical imaging this includes x-ray equipment, mobile units, digital radiography, mammography, CT, dental imaging, and fluoroscopy.

Delivering safe medical imaging services requires practitioners to demonstrate competence in the safe operation of imaging equipment, including identifying and taking appropriate actions to correct any unacceptable conditions or operation of that equipment. Understanding of, and compliance with, protocols for recording and reporting conformance and non-conformance of equipment is required.

Safety of patients includes a good working knowledge of risk management including risk control systems and procedures. The safe use of radiation is critical to medical imaging practice and practitioners must understand the relevant legislation and comply with protocols and procedures. Time, distance, patient shielding, and the ALARA principle are important concepts for safe medical imaging practice. Competence in managing the risk of transmissible infections and the risks associated with patient transfers are fundamental elements of safe practice.

While safety of the patient is most important throughout all imaging procedures, of equal importance is that medical imaging practitioners maintain the safety of themselves and others within the work environment. This requires a good working knowledge of safety risks, the identification and implementation of safety management procedures, the use of appropriate personal protective clothing and equipment, and the legal requirements, protocols, and procedures for reporting of incidents.

Managing and manipulating 3D datasets for image acquisition is a fundamental skill of medical imaging practice. Medical imaging practitioners must also apply their knowledge of pharmaceuticals and pharmacodynamics and the potential range of reactions to drugs or agents. This includes delivering and administering correct pharmaceuticals to patients in compliance with legislation and organisational policies and protocols.

Medical images are used for the purpose of diagnosis of disease and/or injury and practitioners need to ensure the appropriateness of the requested imaging procedure to meet the clinical needs of the patient. Applying their knowledge of the bio-effects of ionising and non-ionising radiation and dose optimisation is essential for the delivery of safe and effective patient outcomes.

Exercising clinical judgement and decision-making is critical for each medical imaging procedure. This includes consideration of conditions/factors that may affect the patient's behaviour and/or capacity to undergo the procedure, their preparation requirements, and determining appropriate adjustments to procedures ensuring they are communicated to the patient. Practitioners may need

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to adapt the requested procedure after considering all available clinical information related to the patient. In accordance with their duty of care responsibilities and statutory requirements, they need to be able to identify and respond to a patient's deteriorating condition or inability to undergo a medical imaging procedure.

Correct positioning of patients is critical to achieving optimal imaging outcomes and this requires practitioners to use their knowledge of human anatomy and assessment of the patient's clinical indications. Practitioners must be able to recognise normal from abnormal imaging appearances and relate appearances to the patient's clinical history. They must demonstrate they can recognise the need for further sources of input as required.

While practitioners must demonstrate an understanding of the use, design and operation of CT systems, the imaging parameters and scan protocols, they are expected to complete practical training post qualification. This training is typically provided as practical based learning within the clinical environment, with specific workplace policies and protocols.

Consultation

Domain 4: Magnetic Resonance Imaging (MRI) practice

Scope

The primary role of a Magnetic Resonance Imaging (MRI) technologist is to perform magnetic resonance imaging procedures and to ensure patient safety during the process; the outcome of which is recorded electronically to allow for consultation with other health and medical practitioners. MRI technologists administer contrast media and other relevant pharmaceuticals in accordance with workplace policies and procedures.

MRI technologists produce high quality diagnostic images using strong static magnetic fields, time varying, gradient and radiofrequency fields. They may use their discretion, in accordance with clinical and workplace policies, to modify the procedure to include relevant regions and/or sequences not suggested in the referral or protocol.

This domain articulates the clinical competencies required of practitioners to practise as an MRI technologist in Aotearoa New Zealand.

Consultation

Competency	**4.1**	**Review and manage patient's MRI requirements**
Behaviours	4.1.1	Obtain and assess patient's clinical history, previous imaging, referral, and current medical information to ensure the requested MRI procedure is appropriate
	4.1.2	Consider the information collected during initial consultation with a patient to assist with deciding the appropriateness of the requested MRI procedure
	4.1.3	Use appropriate sources to obtain or clarify additional relevant clinical information
	4.1.4	Determine appropriate adjustments to procedures and communicate those to the patient
Competency	**4.2**	**Provide MRI procedures**
Behaviours	4.2.1	Prepare and support the patient during the MRI procedure to make the most of the outcome of the imaging procedures
	4.2.2	Perform standard MR imaging procedures and modify MR imaging parameters to achieve optimal diagnostic outcomes
	4.2.3	Modify the procedure according to MRI findings and clinical presentation, where appropriate
	4.2.4	Prepare, assess, and administer pharmaceuticals related to MRI procedures
	4.2.5	Prepare, assess, and administer appropriate MRI contrast
	4.2.6	Apply post-processing techniques
	New	Apply knowledge of MR physical principles and clinical applications
COMPETENCY	**4.3**	**Deliver safe and quality MRI services**
Behaviours	4.3.1	Safely manage access to the magnetic resonance environment to protect the safety of the patient, self, and others
	4.3.2	Identify and manage safety requirements including those related to the static magnetic field, radio frequency field, time-varying fields, implants and devices, thermoregulatory compromise, acoustic noise, and biological effects
	4.3.3	Ensure operating equipment is in good working order and operating within acceptable parameters

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	4.3.4	Understand and apply quality control processes to MRI practice
	4.3.5	~~Perform standard MRI procedures~~
	New	Use infection control measures to protect the safety of the patient, self, and others in the work environment.

Competency	**4.4**	**Application and evaluation of magnetic resonance imaging clinical practice**
Behaviours	4.4.1	Understand MRI concepts and terminologies to enable critical analysis of clinical information and use, to resolve challenges using evidence-based practice
	4.4.2	Systematically clarify and evaluate requests for information, seeking further input if required
	4.4.3	Assess and reconcile divergent or conflicting information to form a professional opinion, including seeking further information as required
	4.4.4	Convey information to appropriate medical personnel when significant findings are identified in accordance with clinical and workplace protocols
	4.4.5	Effectively use systems to record accurate, complete, and timely patient information, maintaining privacy and security of information
	4.4.6	Understand research methods and participate in department audit and research as appropriate
	New	Apply knowledge of pathophysiology, anatomy and tissue characteristics

Consultation

Guidance: Medical Resonance Imaging (MRI) practice

Magnetic Resonance Imaging practitioners apply their knowledge of the principles and clinical application of MRI technology and image acquisition. They must have a sound knowledge of the use, design, and operation of MRI systems.

Reviewing and managing a patient's MRI requirements is a critical phase in the imaging process. Diagnosis of disease and/or injury is the underpinning purpose of MRI procedures and practitioners need to ensure the requested MRI procedure will meet the clinical needs of the patient. Applying their knowledge of MRI technology is essential for the delivery of safe and effective patient outcomes.

Implementation and evaluation of MRI procedures across a range of patient presentations and complexities is a fundamental skill for MRI practitioners. This involves being able to interpret referral requests and understanding the physical and psychological needs of patients within the MRI environment. Understanding and appropriately addressing issues such as claustrophobia, sedation, implants, and devices, paediatrics, cultural needs, and before-and-after care are essential considerations for practitioners when preparing patients for MRI procedures.

Exercising clinical judgement and decision-making is critical for each MRI procedure. This includes consideration of conditions/factors that may affect the patient's behaviour and/or capacity to undergo the procedure, their preparation requirements, and determining appropriate adjustments to procedures ensuring they are communicated to the patient. Practitioners may need to adapt the requested procedure after considering all available clinical information relating to the patient. In accordance with their duty of care responsibilities and statutory requirements, they need to be able to identify and respond to a patient's deteriorating condition or inability to undergo an MRI procedure.

Practitioners will need to apply their knowledge of human anatomy including evaluation of different signal characteristics for individual pathologies and sequences, artifact recognition, and application of techniques to reduce artifacts.

Evaluating a range of standard MRI procedures requires practitioners to apply their understanding of MRI contrast agents and the selection of appropriate contrast agents with regard to safety. Applying their knowledge of post-processing techniques requires practitioners to be skilled in the use of 3D data set manipulation, subtraction, and multi-planar reformatting.

Competent MRI practitioners will understand their responsibilities for communicating significant findings from the procedure and this requires them to recognise normal and abnormal appearances as they appear in various sequences, relating imaging appearances to the patient's clinical history, and recognising the need for further sources of input as required.

Delivery of safe and quality MRI services requires practitioners to apply their knowledge of the physical principles of MRI and the surrounding environment to ensure the safety not only of the patient, but also themselves and other personnel. This includes principles and safety measures related to static magnetic field, radio frequency field, time-varying fields, implants/devices, thermoregulatory compromise, acoustic noise, and biological effects. Assessment of implants/foreign

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bodies is an important element of safe MRI practice.

Knowledge of the workings of MRI equipment is a core requirement and practitioners need to be able to recognise and report equipment faults in accordance with organisational protocols. This includes a range of MRI related equipment including scanners, coils, monitors, scales, injectors, pulse oximeters, and ancillary equipment.

Consultation

Domain 5: Nuclear Medicine practice

Scope

Nuclear medicine practitioners are responsible for the outcome of the nuclear medicine procedure, with the result being recorded electronically to allow for consultation with other health and medical professionals.

Nuclear medicine practice involves the preparation, administration, imaging, and quantification of diagnostic and therapeutic isotopes and radiopharmaceuticals to demonstrate organ and molecular functions and treat pathology. It also encompasses the safe handling, inventory, storage, disposal, and transport of isotopes and radiopharmaceuticals.

Nuclear medicine practitioners operate gamma camera (Single Photon Emission Computed Tomography) (SPECT/CT) and Positron Emission Tomography (PET/CT) imaging systems, with or without sealed sources of radioactive materials and x-ray tubes for attenuation correction, anatomical fusion, transmission imaging, as well as diagnostic Computed Tomography (CT)*.

*For a Nuclear Medicine Technologist (NMT) to operate a CT scanner for diagnostic CT scans they need to:

1. Hold a practising certificate in the Medical Imaging Technologist scope of practice OR
2. Demonstrate completion of a Board approved education programme in CT OR
3. Provide evidence of CT competency that has been obtained elsewhere, is deemed satisfactory and approved by the Board.

This domain articulates the clinical competencies required to practice as a Nuclear Medicine Technologist/Practitioner in Aotearoa New Zealand.

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Competency	**5.1**	**Review and manage patient's nuclear medicine requirements**
Behaviours	5.1.1	Obtain and assess patient's clinical history, referral, and current medical information to confirm the requested nuclear medicine procedure is appropriate
	5.1.2	Consider information collected during initial consultation with a patient to assist with considering the appropriateness of the requested nuclear medicine procedure
	5.1.3	Use appropriate sources to obtain or clarify additional relevant clinical information
	5.1.4	Determine appropriate adjustments to procedures and communicate those to the patient
Competency	**5.2**	**Provide nuclear medicine procedures**
Behaviours	5.2.1	Prepare and support the patient during the nuclear medicine procedure to optimise the outcome
	5.2.2	Perform routine nuclear medicine imaging including PET/CT (Molecular Imaging) to achieve optimal diagnostic and therapeutic outcomes
	5.2.3	Perform CT imaging for attenuation correction, anatomical fusion, and/or diagnostic imaging*
	5.2.4	Prepare, assess, and administer radiopharmaceuticals and isotopes
	5.2.5	Prepare, assess, and administer pharmaceuticals as related to nuclear medicine practice including PET/CT (Molecular Imaging) and Theranostics
	5.2.6	Perform in vitro, mixed in vitro, and in vivo laboratory procedures
	5.2.7	Demonstrate an understanding of Theranostics
Competency	**5.3**	**Deliver safe and quality nuclear medicine procedures**
Behaviours	5.3.1	Safely manage radiation to protect the patient, self, and others in nuclear medicine procedures including the PET/CT (Molecular Imaging) and Theranostics environment
	5.3.2	Ensure all imaging and non-imaging equipment is in good working order and operating within acceptable parameters
	5.3.3	Understand and apply Quality Assurance, including Quality Control protocols, to nuclear medicine procedures including PET/CT (Molecular Imaging) and Theranostics.

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	New	Use infection control measures to protect the safety of the patient, self, and others in the work environment.
Competency	**5.4**	**Application and evaluation of nuclear medicine clinical practice**
Behaviours	5.4.1	Apply fundamental concepts and terminologies to enable critical analysis of clinical information and use to resolve challenges using evidence-based practice
	5.4.2	Systematically clarify and evaluate requests for information, seeking further input if required
	5.4.3	Assess and reconcile divergent or conflicting information to form a professional opinion including seeking further information as required
	5.4.4	Effectively use systems to record accurate, complete, and timely patient information, maintaining privacy and security of information
	5.4.5	Apply knowledge of pathophysiology, anatomy, and radiobiological principles
	5.4.6	Understand research methods; and participate in department audit and research as appropriate.

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Guidance: Nuclear Medicine practice

Exercising clinical judgement and decision-making is critical for each nuclear medicine procedure. This includes consideration of the conditions/factors that may affect the patient's behaviour and/or capacity to undergo the procedure, following their preparation requirements.

Practitioners may need to adapt the requested procedure after considering the available clinical information relating to the patient, ensuring the changes are communicated effectively to the patient. In accordance with their duty of care responsibilities and statutory requirements, Nuclear Medicine practitioners need to be able to identify and respond to a patient's deteriorating condition or inability to undergo nuclear medicine imaging procedure.

Nuclear medicine practitioners need to be able to recognise imaging appearances as either normal, altered, or unexpected and relate appearances to the patient's history. They must be able to recognise the need for further sources of input as required, and to maintain latioance with organisational policies and procedures to effectively convey information when significant findings are identified.

In performing routine nuclear medicine procedures, Nuclear Medicine practitioners will need to use correct techniques appropriate to the imaging required. Achieving the best diagnostic outcome for the patient requires practitioners to apply their knowledge of nuclear medicine principles and their application to each organ, body part and/or organ system. Nuclear Medicine practitioners are required to demonstrate their knowledge of standard and hybrid/fusion studies.

CT imaging for attenuation correction, anatomical fusion, and/or diagnostic imaging requires Nuclear Medicine practitioners to have and demonstrate knowledge of the use, design, and operations of CT systems. Additional to this, practitioners will need to use their knowledge of imaging parameters, scan protocols, and relative dose levels based on a range of patient presentations and scan requirements. When performing post-processing techniques, Nuclear Medicine practitioners will need to apply their knowledge of multi-planar reformats, co- registration, and volume imaging.

Nuclear medicine procedures require the practitioner to demonstrate competence in the preparation and assessment of radiopharmaceuticals. This includes displaying knowledge of the elution process, quality control of a radioisotope generator, assay the eluate, and preparing radiopharmaceuticals. Nuclear Medicine practitioners must be able to identify critical procedure features such as correct volumes of products and applying quality control processes to radiopharmaceuticals to assess for safe clinical use. They will need to use appropriate dose delivery systems and safe aseptic techniques that may include (but are not limited to) arterial, oral, subcutaneous, inhalation and intravenous administration.

Practitioners must be able to apply knowledge of pharmaceuticals and pharmacodynamics, including delivering/administration of correct pharmaceuticals to patients in compliance with legislation and organisational policies, as well as the range of potential reactions to drugs.

Practitioners will need to display an understanding of in vitro, mixed in vitro and in vivo laboratory

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procedures. This includes understanding aseptic blood-labelling procedures, competence in managing the risk of transmissible infections, and methods to determine if results of laboratory procedures are normal, altered, or unexpected.

Performing theranostic procedures is a core competency required of Nuclear Medicine Practitioners. They will need to apply their knowledge of the difference between therapeutic and diagnostic doses as it affects the patient, the practitioner, and the public. Practitioners will need to be able to provide appropriate preparation, care, and after-care for the patient. They will need to use appropriate dose delivery systems and safe aseptic techniques as mentioned previously. Their practice will be in accordance with organisational protocols.

Nuclear Medicine practitioners need to be able to apply knowledge of ionising radiation, dose optimisation, as well as radioactive decay for safe and effective patient outcomes. This includes an understanding of the applications of time, distance, shielding, and the ALARA principle.

To safely manage radiation and sources of radioactivity (both sealed and unsealed) Nuclear Medicine practitioners must have a sound knowledge of the safe and legal methods of handling, storing, and the disposal of radioactive materials (including shielding requirements). Practitioners must be able to perform these tasks within legislative and organisational requirements, as well as being aware of the legal requirements, policies, procedures and protocols for reporting of incidents involving radiation.

A core component of safe practice is a practitioner's ability to implement safety management procedures and the use of personal protective equipment/clothing where appropriate. Nuclear Medicine Practitioners must demonstrate competence in safe operation of equipment, including identifying and actioning when unacceptable conditions and/or operations have occurred.

Quality assurance programmes, and quality control processes require Nuclear Medicine Practitioners to apply knowledge of safe nuclear medicine practice, including routine quality control processes of imaging and laboratory equipment. These must be able to be performed in accordance with New Zealand legislation. Specifically the:

1. Code of practice for Nuclear Medicine (ORS C2 2019).
2. Code of practice for the security of radioactive material (ORS C5 2020).
3. Code of practice for the safe transport of radioactive materials (ORS C6 2019).
4. Radiation Safety Act (2016).

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consultation

Domain 6: Radiation Therapy practice

Scope

Radiation therapists are responsible for the planning and delivery of radiation treatment, primarily for people diagnosed with cancer. Creating and evaluating images for the localisation, planning, and delivery of radiation treatment is performed by radiation therapists in accordance with the prescription of radiation oncologists.

Providing specific care to patients throughout the course of their treatment requires radiation therapists to educate patients on the management of any treatment related side-effects.

This domain articulates the clinical competencies required of practitioners to practise as a radiation therapist in Aotearoa New Zealand.

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Competencies and behaviours

Competency	**6.1**	**Review and manage patient's radiation therapy requirements**
Behaviours	6.1.1	Obtain and assess patient's clinical history, referral, and current medical information to confirm the requested procedure is appropriate
	6.1.2	Consider information collected during initial consultation with patient to assist with the development of an appropriate treatment delivery and care plan
	6.1.3	Use appropriate sources to obtain or clarify additional relevant clinical information
	6.1.4	Determine appropriate adjustments to procedures and communicate those to the patient
Competency	**6.2**	**Provide radiation therapy**
Behaviours	6.2.1	Use appropriate technology and devices for the delivery of radiation therapy
	6.2.2	Perform treatment simulation techniques
	6.2.3	Use knowledge of treatment planning to ensure the patient receives the optimal delivery of radiation therapy treatment
	6.2.4	Deliver treatment techniques according to approved plans/prescriptions
Competency	**6.3**	**Deliver safe and quality radiation therapy services**
Behaviours	6.3.1	Safely manage radiation to protect the safety of the patient, self, and others in the work environment
	6.3.2	Identify and manage safety requirements
	6.3.3	Collaborate with medical physics/engineering to ensure operating equipment is in good working order and operating within acceptable parameters
	6.3.4	Understand and apply quality control processes to radiation therapy practice
	New	Use infection control measures to protect the safety of the patient, self, and others in the work environment.

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Competency	6.4	Application and evaluation of radiation therapy clinical practice
Behaviours	6.4.1	Apply fundamental concepts and terminologies to enable critical analysis of clinical information and use, to resolve challenges using evidence-based practice
	6.4.2	Systematically clarify and evaluate requests for information, seeking further input if required
	6.4.3	Assess and reconcile divergent or conflicting information to form a professional opinion, including seeking further information as required
	6.4.4	Effectively use systems to record accurate, complete, and timely patient information, maintaining privacy and security of information
	6.4.5	Apply knowledge of pathophysiology, anatomy, and radiobiological principles
	6.4.6	Understand research methods and participate in department audit, and research as appropriate.

Consultation

Guidance: Radiation Therapy practice

Using their knowledge of immobilisation and positioning devices is fundamental to radiation therapy practice. This includes immobilisation/positioning methods suitable for simulation, planning and treatment as appropriate to the patient's condition and presentation. Radiation therapists will need to use their knowledge of the immobilisation/positioning required for a particular radiation therapy procedure and/or treatment technique. Applying their knowledge to fabricate or adapt suitable immobilisation/positioning devices and ancillary equipment is a fundamental competency for radiation therapists, including any limitations or restrictions in the use of those devices.

Performing treatment simulation techniques requires radiation therapists to use their knowledge of anatomy and physiology from an oncology perspective to evaluate images of the patient. Treatment simulation as appropriate to the patient's diagnosis, site to be treated, required prescription, patient condition and related planning procedures is a fundamental element of radiation therapy practice. Radiation therapists will also need to demonstrate an understanding of the use of MRI and PET in simulation imaging.

Exercising clinical judgement and decision-making is critical for each radiation therapy procedure. This includes consideration of conditions/factors that may affect the patient's behaviour and/or capacity to undergo the procedure, their preparation requirements, and determining appropriate adjustments to procedures, ensuring they are communicated to the patient. Practitioners may need to adapt the procedure after considering all available clinical information relating to the patient. In accordance with their duty of care responsibilities and statutory requirements, they need to be able to identify and respond to a patient's deteriorating condition or inability to undergo a radiation therapy procedure.

Applying radiation physics and biology fundamentals to treatment planning covers a range of medical imaging and treatment methods and techniques. In applying their knowledge of generating and evaluating radiation therapy treatment plans, practitioners must demonstrate an awareness of tumour and target volumes and normal tissue volumes.

When carrying out treatment planning, radiation therapists will need to use their knowledge of the production of radiation therapy treatment plans using relevant protocols.

The implementation and delivery of treatment techniques requires radiation therapists to apply their knowledge of the safe and effective use, design, and operation of radiation therapy treatment systems. They will need to be able to develop plans for a range of treatment techniques. Practitioners will also need to apply their knowledge of verification systems and their impact on treatment delivery.

The safe management of radiation and radioactivity requires radiation therapists to apply their knowledge of the environmental risks of radiation and radioactivity. They will need to demonstrate they use safe and legal methods for the handling, storage, and disposal of radiation and radioactivity including shielding requirements. Radiation therapists will need to apply protocols and procedures in response to radiation and radioactivity incidents, doing so within legislative and organisational requirements.

Consultation

Domain 7: Sonography practice – inclusion of general, cardiac and vascular sonography

Scope

The primary role of a sonographer is to perform and interpret sonographic examinations and to provide a summary of the findings in written form to other health professionals. Sonographic practice encompasses both technical and interpretive skills.

Performing a wide range of real-time diagnostic sonographic procedures, sonographers may at their discretion, in accordance with clinical and workplace policies, modify the procedure to include relevant regions and/or sequences not suggested in the referral.

This domain articulates the clinical competencies required of practitioners to practise as a sonographer in Aotearoa New Zealand.

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Competency	**7.1**	**Review and manage patient's sonography imaging requirements**
Behaviours	7.1.1	Obtain and assess a patient's referral, clinical history, and current medical information to confirm the requested procedure is appropriate
	7.1.2	Consider information collected during consultation with a patient to assist with deciding the appropriateness of the requested sonographic procedure
	7.1.3	Use appropriate sources to obtain or clarify additional relevant clinical Information, and specifically address the clinical question
	7.1.4	Determine appropriate adjustments to procedures and communicate those to the patient
Competency	**7.2**	**Provide sonography procedures**
Behaviours	7.2.1	Apply knowledge of the principles and clinical applications to sonographic imaging
	7.2.2	Prepare and support the patient during the procedure to optimise the outcome of the sonographic procedure
	7.2.3	Modify sonographic imaging parameters to achieve optimal diagnostic outcomes
	7.2.4	Modify the procedure according to sonographic findings and clinical presentation, where appropriate
	7.2.5	Document and communicate the results of the sonographic examination to the reporting medical practitioner. In some circumstances the sonographer may be responsible for documenting and communicating the examination findings directly to the referring medical practitioner and patient
Competency	**7.3**	**Deliver safe and quality sonography services**
Behaviours	7.3.1	Use infection control measures to protect the safety of the patient, self, and others in the work environment
	7.3.2	Identify and manage safety requirements
	7.3.3	Ensure sonographic equipment is in good working order and operating within acceptable parameters
	7.3.4	Understand and apply quality processes to sonography practice

Consultation

Competency	**7.4**	**Application and evaluation of sonography clinical practice**
Behaviours	7.4.1	Understand sonographic concepts and terminologies to enable critical analysis of clinical information, and use to resolve challenges using evidence-based practice
	7.4.2	Systematically clarify and evaluate requests for information, seeking further input if required
	7.4.3	Assess and reconcile divergent or conflicting information to form a professional opinion, including seeking further information as required
	7.4.4	Understand and convey information in a timely manner when significant findings are identified
	7.4.5	Effectively use systems to record accurate, complete, and timely patient information, maintaining privacy and security of information
	7.4.6	Understand research methods and participate in department audit and research as appropriate
	7.4.7	Apply knowledge of anatomy to identify and support sonographic information and interpretation.

Consultation

Guidance: Sonography practice

Sonographers use their clinical judgement to prioritise, plan, execute and interpret sonographic examinations.

Sonographers are expected to apply their knowledge of sonographic physics and instrumentation, human anatomy, embryology, physiology, pathophysiology, and clinical sonographic interpretation to correctly interpret sonographic findings.

Sonographers may use any combination of sonographic technologies for the benefit of their patients including 2D, Doppler, 3D/4D, contrast-enhanced ultrasound (CEUS), elastography, fusion imaging.

Using standard and non-standard techniques/images and instrumentation for each body part and, where appropriate, modifying them to consider patient presentation and clinical information, is a fundamental competency required of sonographers. A decision to modify a procedure requires the practitioner to assess the quality of images and clinical significance of abnormalities and revise the procedure strategy in response to the sonographic appearances.

Exercising clinical judgement and decision-making is critical for each sonographic procedure. This includes consideration of conditions/factors that may affect the patient's behaviour and/or capacity to undergo the procedure, their preparation requirements, and determining appropriate adjustments to procedures ensuring they are communicated to the patient. Practitioners may need to adapt the requested procedure after considering all available clinical information relating to the patient. Practitioners must ensure still images/cine loops accurately represent any pathology present. In accordance with their duty of care responsibilities and procedure protocols, they need to be able to identify and respond to a patient's deteriorating condition or ability to undergo a sonographic procedure.

To optimise images, sonographers apply their knowledge of physics and instrumentation which includes being able to distinguish between technical artifacts and pathology. They need to understand the bio-effects of ultrasound to minimise the likelihood of biological effects, and in doing so they will be required to apply the As low as reasonably achievable (ALARA) principles to all procedures without compromising quality.

Sonographers need to be knowledgeable of the cultural, psychological, and physical needs of the patient and their support network. This includes an appropriate management and professional approach to addressing complex and/or difficult scenarios.

Sonographers must demonstrate commitment to the full spectrum of quality and safety measuring including, but not limited to, biological safety, environmental safety, system maintenance and quality testing, infection control, picture archiving, data security and cyber-safety.

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