2022

ASMIRT

Guidelines

PROFESSIONAL PRACTICE STANDARDS

Your profession. Your future.

Australian Society of Medical Imaging and Radiation Therapy
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There are a number of protected titles for medical radiation practice. They include:

Medical Radiation Practitioner (MRP)

Diagnostic Radiographer (DR)

Medical Imaging Technologist (MIT)

Radiographer

Nuclear Medicine Scientist (NMS)

Nuclear Medicine Technologist (NMT)

Radiation Therapist (RT).

For the purposes of our documentation we use the broad descriptor Medical Radiation Practitioner (MRP) recognising that it covers a range of areas of practice.

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Ownership

Introduction

The Professional Practice Standards (to be known as the Standards throughout the rest of the document) describe the performance benchmarks for Medical Radiation Practitioners (MRP) eligible for a Statement of Compliance.

The Standards provide a framework for professional, patient and community expectations. The Standards aim to integrate the skills, knowledge and understanding that support Medical Radiation Practitioners with the unique attributes and attitudes of these disciplines. This document is the foundation of what will be a series outlining standards required for escalating levels of practice.

The Standards have several purposes:

- To provide standards of practice for the accredited practitioner
- To provide standards necessary to assess overseas applicants for practice in Australia
- To provide a statement on the status of the profession in the community
- To provide government bodies such as Australian Education International National Office for Overseas Skills Recognition (AEI-NOOSR) and the Department of Education Science and Training (DEST) with information regarding best practice in the profession
- To provide a resource for the development of industrial awards
- To provide a foundation for a framework for higher levels of practice and career structure
- To support health practitioner registration and radiation licensing processes
- To provide a resource for students and practitioners.

This document is the specification of standards, incorporating academic, clinical and professional elements for a practitioner to embody the principles of practice recognised and encouraged by the profession. This document should be read and interpreted in the context of a graduate practitioner being at the minimum level of Australian Qualifications Framework (AQF 7) (Australian Qualifications Framework, 2013).

The format of the document is modularised to assist with enabling access to specific information and cross-referencing domains throughout the standards. As a result, this document has some elements of repetition throughout.

History of the Standards

In 2005 the Australian Institute of Radiography (now known as the ASMIRT) released an updated version of the Competency Based Standards (CBS) following substantial review of the existing 1998 standards by the Professional Accreditation and Education Board (PAEB). During the development of the 2005 CBS document, the PAEB reviewed the approach taken by other Allied Health disciplines both locally and internationally. A significant shift in the philosophy

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underpinning the 2005 CBS was the development of standards based on outcomes rather than the previously utilised task orientated style.

Following the development of the 2005 standards in draft form, consultation was sought from:

- Radiation Therapists and Radiographers representing State Branches
- Specialist Panels of the AIR (Australian Institute of Radiography)
- Academic Institutions
- Regulatory bodies.

Information gathered from this consultation process was used to update the draft and finalise the Standards, which were published in November 2005.

The 2005 CBS identified five standards common in many of the standards of other health professions. These were:

1. Knowledge and Understanding
2. Critical Thinking and Evaluation
3. Professional and Ethical Practice
4. Care and Clinical Management
5. Lifelong Learning

These standards were seen to provide a means of identifying general expectations about the professional practice, attributes and capabilities of Radiation Therapists and Radiographers entering employment immediately following attainment of the AIR Validated Statement of Accreditation. The standards were supported by descriptors and outcome statements.

In 2010 Darcy and Associates were commissioned to conduct a literature review of the CBS and report back to the ASMIRT. This report was also made available to the Council of Regulating Authorities (CORA). Darcy and Associates compared the current standards of practice for medical radiation professionals in Australia, New Zealand, Canada and the United Kingdom, and also examined standards in use by other health professions within Australia. The Darcy and Associates Report maintained that the five standards appeared to be working well for the profession but left open the discussion of what competence was and the part it played in professional activities. The report suggested that by discussing competence as it related to the profession the structural foundation of the revised standards could be organised into domains of competence. This led to the development of the Professional Practice Standards, released in 2012.

In 2013, the Medical Radiation Practice Board of Australia (MRPBA) published professional capabilities, and these were subsequently revised, and an updated version was published in 2019. In recent years changes to the MRP professional scope in some jurisdictions has led to this review and revision of the Standards by the Professional Standards Committee

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Medical Radiation Practitioners

Medical Radiation Science (MRS) is the professional practice of providing a range of diagnostic imaging and therapeutic procedures using ionising or non-ionising radiation. MRS encompasses the fields of radiography, sonography, nuclear medicine and radiation therapy. Medical Radiation Practitioners (MRP) are registered health professionals responsible for using radiation to:

- Diagnose pathology and disease
- Enable visualisation of internal organs to assist in surgical and medical procedures
- Identify extent of disease to aid diagnosis and treatment.
- Treat cancer, benign diseases or muscular complaints

MRPs may be known as radiographers, medical imaging technologists, sonographers, nuclear medicine scientists / technologists or radiation therapists, dependent on role.

Key aspects of the MRS profession include:

- Providing patient centred care and advocating for patients
- Respecting patients' privacy and maintaining confidentiality
- Complying with legal and ethical requirements
- Explaining procedures to patients and carers and answering questions within scope of practice
- Communicating and collaborating with the health professional team to ensure the needs of the patient are met to provide the best outcome for the patient
- Documenting all patient interactions in the medical record as per local and national standards
- Produce images for diagnosis or facilitate the delivery of therapy
- Using clinical knowledge to problem solve and adapt procedures or approaches to patient care
- Performing quality assurance checks on equipment, images and procedures
- Ensuring that justification and optimisation of ionising radiation is in accordance with the ALARA principle
- Ensuring patient safety through quality management and improvement processes
- Reporting and monitoring incidents to learn from errors
- Engaging actively in clinical education, training and supervision
- Engaging in research, development and implementation of emerging technology and practice
- Continuing to develop professionally to ensure best practice is provided
- Advocating for patients and the profession

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Structure of Professional Practice Standards

The professional standard format comprises of five levels:

- Domain
- Standard
- Element
- Indicator
- Cues

Domain

The standards have been grouped together into domains of professional responsibility. The six domains are:

1. Professional and Ethical Practice
2. Communication, Teamwork and Autonomy
3. Knowledge and Understanding
4. Critical Thinking and Evaluation
5. Service Delivery and Clinical Management
6. Lifelong Learning.

It is relevant to note that the order in which the domains are presented does not indicate an order of importance.

- Standards

Each standard describes the professional activity to be assessed or demonstrated. The standards are the explicit requirements of the MRP as they practice in the clinical environment.

- Elements

The standards are further broken down into elements. These describe the key components or responsibilities within the standard.

- Indicators

Indicators describe the performance criteria associated with each element. They represent actions which should be evident in the daily clinical practice to ensure the standards are being met.

- Cues

Cues are intended to aid with clarification of the indicators of performance.

Domain 1: Professional and Ethical Practice

Standard 1.1	Practises within the Legal Framework
Standard 1.2	Practises to the standards defined by the profession
Standard 1.3	Fulfils the duty of care in clinical practice
Standard 1.4	Provides patient centred care
Standard 1.5	Establishes and maintains effective interpersonal relationships with patients and their support persons
Standard 1.6	Is culturally sensitive and responds appropriately

This domain deals with the standards that relate to the legal, ethical and professional responsibilities of MRPs. Professional behaviour and conduct is expected at all times. MRPs have:

- a duty of care to both their patients and other health professionals with whom they interact.
- an obligation to demonstrate professional capability, and to only undertake procedures within their own scope of practice.

Practice is regulated by statute and common law. ASMIRT provides Guidelines for Professional Conduct for Medical Radiation Professionals and a Code of Ethics. Professional practice consistent with the standards outlined in this domain ensures that procedures performed are of consistent and reliable quality.

Standard 1.1 Practises within the Legal Framework

This standard relates to the legislative requirements that impact on the professional practice of the MRP. It delineates the requirement to practise according to the codes, guidelines and standards that have been set by regulatory bodies and ASMIRT.

Element 1: Practises in accordance with statute law and the ASMIRT Code of Ethics, Guidelines for Professional Conduct, and Professional Practice Standards	
Indicators	**Cues**
1. Understands and applies the obligations of statute law as it relates to the delivery of their professional services	Has an awareness of the statutory role of the MRPBA/regulatory body
	Maintains professional registration meeting the standards set out by the national law governing the regulation of Medical Radiation Practitioners
	Complies with the Code of Conduct of the regulatory authority

	Meets requirements of the MRPBA Professional Capability Statement for Medical Radiation Practitioners for the relevant division.
	Maintains radiation licencing where applicable
	Understands the legal responsibility to be accountable for professional practice, including avoiding acts of negligence, and acts appropriately
	Recognises and understands the legal implications of professional misconduct or negligence
2. Executes the legislative obligations that are relevant to the provision of their professional practice	Demonstrates safe practice within the framework of current legislation that governs the use of radiation and pharmaceuticals for medical purposes
	Only undertakes procedures which have been requested by an authorised person as defined by the regulatory authority
	Ensures that operational policies and procedures comply with the legislative requirements governing the use of radiation and pharmaceuticals
	Understands and executes the legal requirements of maintaining a safe workplace under Work Health and Safety legislation
	Understands and executes the requirements of relevant legislation to professional practice in a healthcare setting
3. Practises in accordance with the Code of Ethics and the Code of Professional Conduct of ASMIRT	Knowledge of and compliance with Code of Ethics and Professional Conduct of ASMIRT
4. Practises in accordance with the Professional Practice Standards of ASMIRT	Knowledge and compliance of the Professional Practice Standards of ASMIRT
Element 2: Practises in a manner that upholds the patient's right to privacy.	

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Indicators	Cues
1. Knowledge of the legislation relating to privacy	Has knowledge of and complies with the Privacy Act as it relates to professionals, and can direct others to the relevant documents
Element 3: Ensures confidentiality of information	
Indicators	**Cues**
1. Understands the importance of patient confidentiality	Respects the confidentiality of information relating to patients and their families
	Complies with statutory reporting requirements
2. Upholds the local Privacy and Confidentiality policies	Complies with privacy legislation when sharing patient information for professional and procedure purposes
3. Ensure that patient confidentiality is upheld	Disposes of identified patient information in an appropriate manner
	Complies with legislative requirements and local policies when using patient data
Element 4: Ensures that procedures are undertaken with the appropriate consent	
Indicators	**Cues**
1. Understands the importance of patient consent	Clearly explains procedures to the patient before commencing the examination or treatment
	Employs the use of an interpreter when required
2. Ensures informed consent has been obtained	Ensures the patient has been given adequate information about the procedure
	Only initiates a procedure when the appropriate consent has been obtained
	Documents consent according to local processes.
Element 5: Complies with ethical practice standards	
Indicators	**Cues**
1. Engages effectively in ethical decision making	Demonstrates an ability to make informed, sensitive, and ethically sound professional

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	judgements and to evaluate the outcomes of clinical practice
2. Tailors procedures to the individual patient	Identifies, assesses, and acts upon physical and psychological needs
3. Understands the patient's rights relating to consent	Understands, accepts, and acts upon the knowledge that the patient can withdraw consent at any stage during the examination
	Knows the steps to take in the case of a patient withdrawing consent

Standard 1.2 Practises to the standards of the profession

This standard relates to the responsibility of MRPs to uphold the reputation, integrity, and dignity of the profession. MRPs should always behave in a manner which justifies the trust and confidence placed in them by their patients and their professional colleagues. MRPs should work to serve the best interests of their patients at all times.

Element 1: Maintains Professional behaviour	
Indicators	**Cues**
1. Maintains professional integrity	Refrains from engaging in any activity which may bring the profession into disrepute
	Recognises and appreciates the imbalance of power during procedures and takes steps to avoid any misinterpretation of professional behaviour
	Does not abuse the professional relationship formed with patients
	Practises with cultural competence
	Works without seeking personal profit or gain from interactions with patients
2. Understands personal accountability for work and professional conduct	Accepts responsibility for their decisions during procedures
3. Works within the guidelines of the profession	Recognises the scope of practice of their own health profession and those of others, and works appropriately within those frameworks

Standard 1.3 Fulfils the duty of care in clinical practice

This standard covers the duty of care MRPs have to their patients, particularly with regard to patient safety and well-being.

Element 1: Acts to ensure the rights of patients are not compromised	
Indicators	**Cues**
1. Demonstrates practice that recognises, respects, and upholds the rights and dignity of patients	Practises in a manner that protects the patient's best interest
	Acts as an advocate for the patient
Element 2: Demonstrates duty of care in patient management	
Indicators	**Cues**
1. Understands their duty of care to patients.	Describes and understands the meaning of duty of care
2. Ensures procedure is provided within an appropriate time frame	Uses clinical judgement to assign priority in terms of the medical urgency and acts accordingly
	Alerts the appropriate personnel of medically significant findings or of a change in patient condition
3. Ensures that consent protocols have been followed	Follows the consent protocols of the healthcare organisation
	Verifies the appropriate completion of examination/procedure consent

Standard 1.4 Provides patient centred care

This standard covers patient centred care, which considers the patient's wants, needs, and preferences. Patients should be provided with the information and support necessary to become actively involved in decisions concerning their care.

Element 1: Provides patient focused care	
Indicators	**Cues**
1. Recognises, monitors and responds to the needs of patients	Identifies and takes responsibility for the care of a patient
2. Adapts the procedure to take into account patients' needs	Identifies situations which may affect patient outcomes and adapts the procedure accordingly

3. Encourages the patient to be an active participant in the procedure	Provides an appropriate environment for the patient to engage with the practitioner
	Seeks the patient's cooperation, and allows time for the patient to comply with requests

Standard 1.5 Establishes and maintains effective interpersonal relationships with patients, carers and their support persons

This standard covers the MRP's ability to establish a rapport with patients and support persons to enable a successful outcome to the examination or procedure. It also deals with the timely dissemination of information to patients and support persons.

Element 1: Treats patients and support persons with respect and empathy	
Indicators	**Cues**
1. Uses a respectful and empathetic approach when dealing with patients and support persons	Establishes rapport with patients and support persons
	Introduces and identifies themselves in a respectful manner before commencing the procedure
	Communication with patients and support persons is conducted with sensitivity and respect
	Explains procedures in terms and language that is understood by patients and support persons
	Actively listens to patients and support persons and responds accordingly
	Recognises that behaviour may be affected by anxiety and uncertainty
	Responds to patient and support person feedback according to policies and procedures of the workplace
	Anticipates and responds to the needs of patients and support persons to ensure the delivery of quality care
Element 2: Applies strategies to support patients and support persons	
Indicators	**Cues**

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1. Informs and supports patients and support persons in a timely, appropriate and sensitive manner	Is responsive in providing information to patients within own scope of practice
	Is respectful of the role of support persons and provides information as appropriate, ensuring patient confidentiality at all times

Standard 1.6 Practises in a culturally sensitive manner

This standard relates to cultural awareness. The MRP should practice without discrimination and demonstrate respect and sensitivity to all patients.

Element 1: Acts in ways that demonstrate respect for the values, customs, spiritual beliefs and practices of individuals	
Indicators	**Cues**
1. Respects the diversity of patients and staff/colleagues	Respect every patient and colleague as an individual
	Ensures that own values and beliefs are not imposed on others
	Recognises situations where there may be potential for misinterpretation or conflict
	Understands the obligation to practice without discrimination
2. Identifies, assesses, and accommodates cultural diversity in practice 1 *Adapted from MRPBA capability statement: Medical Radiation Practice of Australia (2020) Professional capabilities for medical radiation practitioners, p18, available at Medical-Radiation-Practice-Board---Professional-capabilities-for-medical-radiation-practice.PDF accessed on 28/11/21.*	Applies knowledge of socio-cultural diversity in the Australian community, including, but not limited to, factors such as culture, language, age, gender, disability, religion, socio-economic circumstances, geographic locality, and identifying as Aboriginal and/or Torres Strait Islander
	Ensures practice is sensitive to and supports cultural diversity
	Adapts practice to the cultural needs of patients
	Identifies and reflects on own cultural biases, assumptions and prejudices so to provide a clinical and workplace environment that is inclusive, unbiased and free of racism. (1)
	Understands the intergovernmental commitment to improving the health

3. Practices in accordance with principles of cultural safety	outcomes of Aboriginal and Torres Strait Islander peoples ("Closing the Gap") and providing health care that is free of racism
	Understands and accepts that historical colonisation and systemic racism continues to directly and indirectly impact on the social and emotional wellbeing of Aboriginal and Torres Strait Islander peoples at an individual and community level
	Recognises that patients and their communities exercise self-determined decision making in health care, and that the patient – health care professional relationship is based on partnership and collaboration
	Leads by example in creating clinical and workplace environments that support the rights and dignity of Aboriginal and Torres Strait Islander patients and co-workers. (2)

2 *Adapted from AHPRA (2020) The National Scheme's Aboriginal and Torres Strait Islander Health and Cultural Safety Strategy 2020-2025, p9, available at National-Scheme-s-Aboriginal-and-Torres-Strait-Islander-Health-and-Cultural-Safety-Strategy-2020-2025.PDF accessed on 28/11/2021*

Domain 2: Communication, Teamwork and Autonomy

Standard 2.1	Demonstrates effective communication skills
Standard 2.2	Establishes and maintains appropriate collaborative relationships with colleagues and members of the health professional team
Standard 2.3	Demonstrates well-established conflict resolution skills
Standard 2.4	Operates effectively as an autonomous and responsible practitioner

This domain relates to both effective communication and the establishment and maintenance of collaborative working relationships. Conflict resolution skills are a part of maintaining effective, collaborative relationships. This domain also includes the standards relating to the autonomy of MRPs, their professional responsibilities, and accountability for their own work practices.

Standard 2.1 Demonstrates effective communication skills

This standard relates to the ability of MRPs to use effective communication skills in all aspects of their professional duties. It encompasses verbal, non-verbal and written communication. MRPs should be aware of the barriers to the communication process and understand that diversity may require some modification of their communication.

Element 1: Uses effective communication methods	
Indicators	**Cues**
1. Maintains effective communication skills	Uses knowledge of effective communication skills that includes verbal, non-verbal and written communication
	Selects the appropriate communication method
	Exchanges and shares information with members of the interprofessional team
2. Respects the opinions of others	Listens to, and shows respect for other opinions and views
Element 2: Adjusts communication technique to suit the situation	
Indicators	**Cues**
1. Adjusts communication effectively in diverse contexts	Adapts and adjusts communication style appropriately
	Demonstrates awareness that communication needs for patients in a diverse community will vary and employs

	appropriate strategies to ensure effective communication
	Seeks feedback through interpreter or relatives to ensure appropriate cultural interpretation
	Employs the use of an interpreter when the clinical situation requires
2. Utilises a communication style which is suitable, applicable and acceptable	Articulates thoughts and ideas using clear concise language
	Does not use language which may cause offence
	Clarifies information when necessary to aid with understanding
	Uses various forms of communication to ensure information provided is accurate and complete
3. Confirms that the intended message has been correctly interpreted	Confirms that the information is understood by asking open ended follow up questions
	Responds to feedback and clarifies when necessary
	Demonstrates and responds to non-verbal communication
	Alters vocabulary to aid with understanding when necessary

Standard 2.2 Establishes and maintains appropriate collaborative relationships with colleagues and members of the healthcare team

This standard deals with the role of an MRP as a member of the interprofessional team. MRPs should endeavour to create strong working relationships with other members of the healthcare team in order to ensure the best possible care for patients. The standard addresses the communication requirements, networking skills, understanding, and respect necessary to become an effective member of the team.

Element 1: Ability to work collaboratively within the organisation	
Indicators	**Cues**
1. Provides information and advice to colleagues and members of the healthcare team	Contributes to discussions with the professional team to enable achievement of optimum outcomes
	Educates others about MRP practice including radiation safety
	Engenders confidence in own role within the healthcare team
	Contributes to the patient care pathway as part of the healthcare team
2. Establishes the communication pathways necessary to achieve desired outcomes	Establishes and actively maintains positive working relationships with colleagues
3. Establishes effective collaborative working relationships with other health professionals and support staff to provide patient care	Develops collaborative working relationships with healthcare professionals and support staff
	Encourages mutual sharing of knowledge and experience with other members of the healthcare team
4. Ability to recognise and support the role and function of other healthcare professionals and support staff	Respects and understands the roles of all members of the healthcare team in a professional environment
	Works in partnership with other members of the healthcare team
	Recognises situations where the expertise of other health professionals is required
5. Understands and recognises organisational structure and their responsibility within it	Recognises own role within the healthcare team and takes responsibility to ensure effective patient care

Element 2: Advise colleagues and members of the healthcare team about individual patients' needs	
Indicators	Cues
1. Communicates patient requirements to members of the healthcare team	Liaises with colleagues and members of the healthcare team to ensure patient care
	Discusses suitability of requests with members of the healthcare team as appropriate to the situation
	Follows notification procedure when an immediate clinical response is required, including pathology identified on imaging
	Provide clinical input within own scope of practice

Standard 2.3 Demonstrate conflict resolution skills

This standard incorporates the process of conflict resolution, and the necessity to address conflict in a timely manner, following appropriate channels.

Element 1: Demonstrates appropriate skills for managing conflict within the workplace.	
Indicators	Cues
1. Responds appropriately to conflict within the workplace	Develops and maintains constructive professional relationships
	Employs appropriate strategies to deal with conflict
	Co-operates and compromises through negotiation to achieve an acceptable outcome for all parties
	Escalates clinical and interpersonal conflict appropriately according to organisational policies and procedures

Standard 2.4 Operates effectively as an autonomous and responsible practitioner

This standard addresses the requirement for MRPs to be responsible and accountable for their own work practices. They will demonstrate initiative, acknowledge their own capabilities, and work within the limits of their own Scope of Practice.

Element 1: Assumes responsibility for own actions and makes independent professional decisions within their Scope of Practice	
Indicators	**Cues**
1. Provides professional opinions that lie within own knowledge, expertise and scope of practice	Provides opinions on professional practice when required
	Provides a professional opinion, within own scope of practice, of clinically significant findings to the medical personnel responsible for the patient's management in a timely manner
2. Procedures are conducted within the scope of practice	Perform procedures consistent with good professional practice.
Element 2: Demonstrates a conscientious approach to work practices	
Indicators	**Cues**
1. Evidence of efficient practice	Manages time and prioritises workload appropriately
	Adjusts priorities to the situation
	Completes all work to a high standard; safely and in a timely manner
2. Projects a professional image	Knows own specific conditions of employment
	Respects the obligation to be punctual for working hours
	Observes all workplace policies and procedures
	Maintains composure in the work environment in stressful conditions
	Manages personal circumstances whilst in the work environment
	Maintains an appropriate standard of appearance and demeanour

	Clothing and personal presentation is professional, suitable and meets standards of the workplace
Element 3: Recognises and responds to own level of professional ability	
Indicators	**Cues**
1. Recognises and works within the limitations of clinical and professional skills	Can define their area of responsibility
	Acknowledges own strengths and weaknesses
	Seeks assistance when required, accepts constructive feedback and uses this to improve professional skills
Element 4 : Ensures documentation is accurate	
Indicators	**Cues**
1. Appropriate identification of all medical records	Ensures workplace patient identification policy is adhered to
	Ensures that all imaging and documentation is annotated with the correct patient identification details
	Should an error occur, ensure that timely remedial actions and reporting are taken, as per workplace policy
2. Accurately completes all documents	Accurately documents patient data
	Completes all administrative responsibilities within the recommended timeframes of the organisation
	Documents any deviation from the standard protocol, and the reasons behind it

Domain 3a: Knowledge and Understanding (Medical Imaging)

Standard 3a.1	Demonstrates a broad and relevant knowledge and understanding of the key theoretical concepts underpinning Medical Imaging
Standard 3a.2	Demonstrates a broad and relevant knowledge of the practice underpinning Medical Imaging.

This domain includes the core knowledge base, principles of medical radiation, and concepts that are required in the practice of medical radiation science. MRPs are required to understand the principles of x-ray production and the benefits and risks associated with medical imaging procedures. An understanding of key principles of radiographic practice is demonstrated. Practice will adhere to the ALARA principle. Knowledge of anatomy, physiology and pathology is used to determine the imaging pathway best suited to answer the clinical question.

Standard 3a.1 Demonstrates a broad and relevant knowledge and understanding of the theoretical concepts underpinning medical imaging

This standard deals with the knowledge base required by MRPs to practice efficiently and safely. It covers knowledge of physics, anatomy, pathology, patient behavioural characteristics, and information technology.

Element 1: Demonstrate a broad and relevant knowledge of the science of medical imaging	
Indicators	**Cues**
1. Demonstrates knowledge of the production and analysis interpretation of medical images	Knowledge and application of the physics of ionising and non-ionising image production
	Knowledge of and use of the types of equipment used in medical imaging
	Knowledge and application of positioning for imaging procedures, including the use of modified techniques
	Adheres to principles of image analysis, critique and quality assurance
	Distinguishes between normal and abnormal appearances and communicates these findings according to local protocols
	Understands the effects of the interactions of x-rays with matter and how this contributes to image formation
	Understands the rationale for selection of each diagnostic modality for the diagnosis of disease

2. Demonstrates knowledge of risk-benefit analysis involved in the practice of medical imaging. 3 Government of Western Australia (2022) Diagnostic Imaging Pathways. http://www.imagingpathways.health.wa.gov.au/index.php 4 Royal College of Radiologists (2017) iRefer Guidelines: Making the best use of clinical radiology. Version 8.0.1. https://www.irefer.org.uk	Justifies the imaging request, seeking further information from the requesting clinician or reporting medical specialist as required
	Selects appropriate imaging protocol based on a consideration of all relevant risks
	Applies the ALARA principle
	Refers to evidence-based imaging guidelines e.g diagnostic imaging pathways (3) or iRefer (4)
3. Demonstrates knowledge of the use of medical terminology as it relates to medical imaging	Understands and applies medical terminology in medical imaging
	Interprets an imaging request form, understanding terminology and abbreviations used
	Communicates appropriately with patients about radiation safety
Element 2: Demonstrate a broad and relevant knowledge of physical sciences as it relates to Medical Imaging	
Indicators	**Cues**
1. Demonstrates knowledge of the physical principles of medical imaging	Understands the physics of radiation, application and interaction with matter
	Understand the principles of image formation across all medical imaging modalities
2. Demonstrates knowledge of principles of radiation dosimetry	Understands and applies the principles of medical imaging to clinical practice
	Understands and interprets the health impact of radiation
	Adapts and modifies exposure factors based on the variables present in any given situation
	Ensures that the appropriate radiation exposure for the area being examined is used by utilising diagnostic reference levels (DRL) and exposure indicators
3. Demonstrates knowledge, principles, application and limitations of equipment and instrumentation	Understands the function of equipment used for image production
	Sets up and uses medical imaging equipment safely and appropriately for each requested examination

Element 3: Demonstrate a broad and relevant knowledge of biological sciences as it relates to medical imaging	
Indicators	**Cues**
1. Demonstrates knowledge of the anatomy and physiology of the human body	Understands the anatomy and physiology of the human body and can relate this knowledge to anatomy demonstrated on radiographic and cross-sectional medical imaging
2. Demonstrates knowledge of pathophysiology	Understands the signs and symptoms of disease as they relate to medical imaging practice
	Recognises and understands pathological appearances on medical images
	Understands the mechanisms of injury and their manifestation on medical images
3. Demonstrates knowledge of radiobiology	Articulates the biological and cumulative effects of radiation dose including the deterministic and stochastic effects
	Optimises imaging parameters and imaging procedures in accordance with the ALARA Principle
	Understands the risks associated with foetal irradiation
	Effectively communicates radiation biology and safety concepts to patients
4. Demonstrates knowledge of pharmacology related to medical imaging	Understands the characteristics, indications, contra indications and potential risk factors and side effects of pharmaceuticals used in medical imaging (e.g. contrast media)
	Understands and adheres to the Quality Use of Medicines (QUM) framework
	Understands the medication management cycle, including prescription, provision of patient information, administration, monitoring for response, and pharmaceutical storage. (5)
	Understands the need for and undertakes screening of patients for risk factors and co-morbidities which may be exacerbated by administration of contrast media

5 *Reference: Commonwealth of Australia: Pharmaceutical Advisory Council (2005) Guiding Principles to Achieve Continuity in Medication Management), pp 8-10, available at QUM_5.indd (health.gov.au) accessed on 28/11/21*

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	Recognises and responds to adverse contrast media reactions, including the capability of performing basic life support, the use of drugs used in the emergency situation, the MRP's role in an emergency response team and escalation processes following workplace procedures
Element 3: Demonstrates a broad and relevant knowledge of humanities and behavioural sciences as it relates to medical imaging	
Indicators	**Cues**
1. Demonstrates knowledge of sociological and psychological aspects of patient centred care	Understands that patients may have concerns relating to their condition, the imaging procedure and the potential diagnosis
	Understands that patients will have anxieties and concerns relating to the investigation and adapts communication accordingly
2. Demonstrates knowledge of behavioural and communication sciences, as they apply to the care of patients undergoing medical imaging	Understands that patients will react to, and cope differently with various medical imaging procedures
	Understands the patient's communication and behaviour may change in response to their illness or injury
	Demonstrates empathy and understanding for the patient
3. Recognises the roles of physical and psychological preparation for imaging procedures	Provides an explanation of the procedure, ensuring the patient understands any instructions prior to the commencement of the procedure
	Adapts the procedure or immobilisation devices to ensure patient comfort.
Element 4: Demonstrates a relevant and current knowledge of Information Technology in a Clinical Setting	
Indicators	**Cues**
1. Demonstrates knowledge of and complies with legislative obligations relating to clinical data	Knowledge of legislative obligations and standards about clinical data, including privacy, ownership, storage, retention and destruction of patient data

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2. Demonstrates knowledge of information technology in a clinical setting	Knowledge of digital network design and the inter-operability between digital clinic systems, including, but not limited to, Health Centre / Hospital Information Systems, Radiology Information Systems, Picture Archiving and Communication Systems and Electronic Medical Records
	Uses clinical information systems to accurately document the patient's demographic data, medical imaging request and patient history, procedure performed, clinical matching process (correct patient, procedure, side), clinical notes and alerts
	Ensures clinical notes and images are archived and progressed through the digital clinical workflow process for reporting and review
	Ensures that correct patient demographic data is associated with the correct patient records and images
3. Operates Clinical Information Systems	Identifies and responds to data errors, including mis-matched patient demographic data and images
4. Manages clinical information within a digital quality framework	Identifies and responds to data system outages and implements down-time and restoration procedures

Standard 3a.2 Demonstrates a broad and relevant knowledge of the practice underpinning medical imaging

This standard refers to the clinical application of theoretical knowledge of medical imaging. It covers patient preparation, positioning, radiation dose selection, operation of medical imaging equipment across a range of settings, image post-processing and archiving, image analysis and interpretation.

Element 1: Demonstrates a thorough knowledge of the principles of medical imaging and their clinical application	
Indicators	**Cues**
1.Demonstrates a knowledge of patient assessment and procedure planning to ensure the procedure is	Plans the procedure according to the individual patient, accounting for any modifications which may be required

appropriate to the presenting diagnostic query. 6 *Reference: Australian Commission for Quality and Safety in Health Care: Ensuring correct patient, correct site and correct procedure in Radiology, Nuclear Medicine, Radiation Therapy and Oral Surgery, accessed on 09.01.2022 from ECPCSCP_FactSheet.pdf(safetyandquality.gov.au*	Ensures that the request is complete, with all required information, and is issued by an authorised health care provider.
	Understands the responsibility to recognise and act when an incorrect or inappropriate examination is requested to fulfil the ALARA obligation to justify the use of radiation in the interest of the patient's care.
	Discusses imaging techniques and alternative imaging strategies with the requesting health practitioner or reporting medical specialist when indicated.
	Follows the Australian Commission for Quality and Safety in Health Care's (6) procedure to ensure correct patient, correct site and correct procedure, including: - Verification of patient information - Matching the information against the request form or consent form - Time out immediately prior to the procedure - Post-procedure confirmation and documentation
	Prepares the patient for the procedure, including an explanation of the procedure and arranging for the removal of radio-opaque clothing / accessories
2. Demonstrates knowledge of patient positioning and immobilisation	Positions the area being examined considering anatomical landmarks, to ensure demonstration of the required anatomical structures
	Uses accessory positioning and immobilisation devices to ensure patient comfort.
3. Demonstrates knowledge of principles, clinical application, and performance of diagnostic radiography in a range of clinical settings	Understands the requirement of performing radiography, including mobile radiography, in a range of clinical settings, including: - A medical imaging department in a community or hospital setting - Emergency Department

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	- Intensive Care Unit - Operating Theatre - Hospital Ward - Forensic setting
	Understands the range of clinical applications for radiography, including: - Appendicular and axial skeleton - Soft Tissues, including chest, abdomen and breast - Dental anatomy, including orthopantomography - Dual Energy X-ray Absorptiometry (DEXA) - Forensic settings
	Establishes appropriate projections required for the examination requested, taking into account the clinical indications for the procedure, the clinical condition of the patient and mechanisms of injury
	Understands and adjusts equipment configurations, including: - Horizontal, vertical or angled beam geometry - X-ray source – image receptor distance - X-ray scatter reducing devises, both physical and digital post-processing methods - X-ray beam filtration and collimation - Use of anatomical markers, position indicators or patient-side radio-opaque markers, both physical and digital post processing methods - Understands the use of radio-opaque markers within the imaging field
	Understands and applies knowledge of image post-process techniques, including:

	- Image contrast and brightness - Magnification, zooming and cropping - Artefact reduction - Image rotation and mirroring
	Applies digital anatomical, position indicators or patient-side markers where required, noting the requirements of forensic radiography.
	Ensures clinical notes, radiation dose, and images are archived according to local protocols.
4. Demonstrates knowledge of principles, clinical application, and performance of fluoroscopy and angiography in a range of clinical settings.	Understands the requirements of performing fluoroscopy and angiography in a range of clinical settings, including: - Fixed fluoroscopy or angiography systems used in an Imaging Department, Operating Theatre or Cardiology setting - Mobile fluoroscopy systems used in a: o Medical Imaging Department o Operating Theatre or Procedure Suite o Emergency Department o Intensive Care Unit
	Understands and adjusts equipment configurations, including: - Equipment geometry, including uniplanar, biplanar systems - X-ray source – patient distance - X-ray source - image receptor distance - Rotational Imaging - X-ray scatter reducing devises, both physical and digital post-processing methods - X-ray beam filtration and collimation - Geometric magnification and digital magnification / zooming - Radiation protection shields

	- Contrast media injector systems
	Understands the medical devices and prostheses used in angiography and operative fluoroscopy, including: - Vascular access devices - Catheters, and guidewires - Stents and vascular occlusion devices - Vascular clips and intravascular filters - Orthopaedic fixation devices and prostheses
	Ensures effective communication within the health care team to ensure the procedure is planned and image acquisition is co-ordinated
	Ensures that all staff in the procedure suite / operating room where fluoroscopy is being used are adhering to safe radiation practices
	Applies digital anatomical, positional and procedural indicators or patient-side markers
	Understands the requirement for processing fluoroscopy / angiography data sets, including: - 2D and 3D image reformation - Image subtraction and image road mapping - Image contrast and brightness - Magnification, zooming and cropping - Artefact reduction - Image rotation and mirroring
	Ensures clinical notes, radiation dose, contrast media volume and type and images are archived according to local protocols
5. Demonstrates knowledge of principles, clinical application, and performance of Computed Tomography (CT) in a range of clinical settings.	Understands the range of procedures performed in CT and recognises when an alternative medical imaging modality may be more appropriate
	Understands the effect of adjusting radiation exposure factors and scanning parameters on the formation of CT Images

	Understands and adjusts CT equipment configurations appropriate for the patient presentation and clinical request including: - Patient position (head-first / feet-first, other orientation) - Radiation dose modulation - X-ray beam width - Scan Field of View - Helical Pitch - Scan Range - Reconstruction algorithms - Intravenous contrast agents, including injector settings - Oral contrast agents, including volume, dilution and timing. - Respiration phase - Respiratory or cardiac gating - Dynamic CT - Interventional CT - CT Fluoroscopy
	Understands the requirements of performing CT, including scans of: - Head - Neck - Chest - Abdomen - Pelvis - Spine - Vascular System, including perfusion imaging - Musculoskeletal System - Interventional procedures

	- With and without contrast agents
	Understands the requirement for processing CT data sets, including multiple plane 2D and 3D image reformation
	Applies digital annotation, including anatomical, position, correct patient-side indicators, and contrast phase
	Ensures clinical notes, radiation dose, contrast media volume and type and images are archived according to local protocols
6. Demonstrates knowledge of the principles, clinical application and performance of medical imaging across the human lifespan	Understands and applies knowledge of the implications and importance of radiation dose control in a paediatric context
	Understands paediatric specific anatomy and pathology
	Understands and applies knowledge of equipment configurations and immobilisation aids for paediatric patients
	Understands and applies effective communication strategies dependent on developmental level of the child
	Understands and applies knowledge of and equipment configurations and immobilisation aids for elderly patients
	Understands and applies effective communication strategies for elderly patients
	Understands the issues around consent and substitute decision makers for younger and elderly patient cohorts
7. Demonstrates knowledge of patient monitoring and care of the deteriorating patient	Understands and applies knowledge of patients' physiological status, including a review of the patient's clinical history and participation in hand-over processes
	Understands and applies knowledge of physiological monitoring equipment and monitors the patient's status throughout the medical imaging procedure

	Recognises and responds to the deteriorating patient (including patient's experiencing adverse contrast media reactions), following local protocols, which includes: - the capability of performing basic life support - understands and applies knowledge of drugs used in the emergency situation - understands and applies knowledge of the MRP's role in an emergency response team
9. Uses established criteria to assess image quality	Assesses images to ensure the following image quality criteria are met: - Patient demographic data is consistent with imaging request and procedure matching process - Anatomical markers are correct and do not obscure anatomical or pathological details - Image artefacts do not unduly obscure anatomical or pathological details or mimic disease - The required anatomical area is included in the projection / scan range - The patient has been correctly positioned for the procedure - The image parameters set provide a diagnostic image - Pathology or anatomical variants are noted, according to local protocol - An assessment of the need to repeat or complete further medical imaging is made, which may include consultation with the reporting medical specialist
10. Assesses images for the presence of urgent pathological conditions	Recognises normal and abnormal appearances and urgent pathological conditions on diagnostic images and conveys this information appropriately to the reporting medical specialist or requesting health care professional, including

	documentation, in a timely manner, according to local protocols
11. Demonstrates knowledge and clinical applications of the full range of medical imaging modalities	Provides advice to other healthcare professionals about the benefits and limitations of the range of medical imaging modalities
12. Contributes to the development of medical imaging protocols	In collaboration with the health care team, contributes to the development of medical imaging protocols and equipment configurations to minimise radiation dose and maximise diagnostic value

Domain 3b: Knowledge and Understanding (Radiation Therapy)

Standard 3b.1	Demonstrates a broad and relevant knowledge and understanding of the key theoretical concepts underpinning Radiation Therapy
Standard 3b.2	Demonstrates a broad and relevant knowledge of the practice underpinning Radiation Therapy

This domain includes the core knowledge base, principles and concepts that are required in the practice of radiation therapy. Radiation therapists are required to understand the principles of x-ray production, radioisotopes and the benefits and risks associated with radiation therapy procedures. An understanding of the key principles of radiation therapy practice is demonstrated. Practice will adhere to the ALARA principle. Knowledge of anatomy, physiology, radiobiology and pathology is essential for simulation, planning and treatment procedures. This domain also includes the psychosocial aspects of the radiation therapy experience, as well as the duty of care medical radiation professionals have to protect the patient and other staff members from unnecessary radiation dose.

Standard 3b.1 Demonstrates a broad and relevant knowledge and understanding of the key theoretical concepts underpinning Radiation Therapy

This standard deals with the knowledge base required by radiation therapists to practice their profession skilfully, efficiently and safely. It covers knowledge of physics, anatomy, pathology, radiobiology, patient behavioural characteristics, and information technology.

Element 1: Demonstrates a broad and relevant knowledge of the science of Radiation Therapy	
Indicators	**Cues**
1. Demonstrates knowledge of simulation, planning and treatment of malignant and benign diseases	Knowledge of the application of ionising and non-ionising radiation
	Knowledge and use of the types of equipment used in radiation therapy
	Knowledge of positioning and immobilisation for radiation therapy procedures, including the use of modified techniques
	Adheres to principles of plan evaluation, image analysis and quality assurance
	Understands the effects of the interactions of x-rays with matter and uses this knowledge in plan construction
	Understands the rationale for selection of modality for treating disease

2. Demonstrates knowledge of risk-benefit analysis involved in the practice of radiation therapy	Justifies prescription, seeking further information from the prescribing clinician as required
	Selection of appropriate treatment protocol is based on consideration of all relevant risks
	Refers to evidence-based guidelines relevant to radiation therapy planning and treatment e.g. ICRU 62
	Applies the ALARA principle
3. Demonstrates knowledge of medical terminology related to Radiation Therapy	Understands and applies medical terminology in radiation therapy
	Interprets a radiation therapy prescription
	Provides appropriate information to patients about radiation safety issues
Element 2: Demonstrates a broad and relevant knowledge of physical sciences as it relates to Radiation Therapy	
Indicators	**Cues**
1. Demonstrates knowledge of the physical principles of radiation therapy	Understands the physics of radiation, application and interaction with matter
	Understands the principles of image formation in relevant imaging modalities
2. Demonstrates knowledge of principles of radiation dosimetry	Understands and applies the principles of radiation therapy imaging and planning in clinical practice
	Understands and interprets the health impact of radiation
	Selects the appropriate planning approach and adapts and modifies factors to obtain appropriate dosimetry
	Selects the appropriate imaging modalities and image frequency to ensure accurate imaging considering workplace protocols, patient and target movement

3. Demonstrates knowledge principles, application and limitations of equipment and instrumentation	Understands the function of the equipment used for image production and treatment delivery
	Sets up and uses all equipment safely and appropriately
4. Understands the physical properties of and the differences between photons, electrons, protons, external beam radiation therapy, brachytherapy and other radioisotopes	Knowledge of the interaction with human tissues for the various radiation particles
Element 3: Demonstrates a broad and relevant knowledge of biological sciences as it relates to Radiation Therapy	
Indicators	**Cues**
1. Demonstrates knowledge of the anatomy and physiology of the human body	Understands the anatomy and physiology of the human body and can relate this knowledge to normal and abnormal anatomy demonstrated on imaging relevant to radiation therapy
2. Demonstrates knowledge of pathophysiology	Understands the signs, symptoms and mechanisms of the spread of cancer
	Understands epidemiology and aetiology associated with the treated condition
	Understands and can describe tumour staging and classification systems
3. Demonstrates knowledge of radiobiology	Understands the biological and cumulative effects of radiation dose including the deterministic and stochastic effects
	Knowledge of acute and late toxicity based on anatomy receiving radiation therapy.
	Knowledge of radiation treatment prescriptions and recognised appropriate dose and fractionation for various cancers dependent on treatment intent.
	Optimises plan in accordance with the ALARA Principle

	Understands the risks associated with foetal irradiation.
	Understands type of radiation used, indications for use, and the acute and late toxicities associated with them, and communicates this effectively to the patient.
3. Demonstrates knowledge of pharmacology related to radiation therapy	Understands the characteristics, indications, and potential side effects of pharmaceuticals commonly used in radiation therapy (e.g. contrast media, drugs used for symptom relief)
	Understands types of contrast used, indications and potential side effects
	Recognises the common types of chemotherapy drugs, and conditions for which they are used
	Recognises and responds to adverse contrast media reactions, including the capability of performing basic life support, the use of drugs used in the emergency situation, the MRP's role in an emergency response team and escalation processes following workplace procedures
Element 4: Demonstrate a broad and relevant knowledge of humanities and behavioural sciences as it relates to Radiation Therapy	
Indicators	**Cues**
1. Demonstrates knowledge of sociological and psychological aspects of patient centred care	Understands that patients may have concerns relating to their condition and treatment
	Understands how life stresses may impact on the patient and their significant others and adapts communication accordingly
2. Demonstrates knowledge of behavioural and communication	Understand that patients may have different responses to illness and treatment

sciences, as applied to the care of those undergoing radiation therapy	Understands the patient's communication and behaviour may change in response to their illness
	Demonstrates empathy and understanding for the patient
	Demonstrates knowledge and understanding of end-of-life care
3. Recognises the roles of physical and psychological preparation for radiation therapy	Demonstrates understanding of the rationale for patient preparation required for radiation therapy treatment
	Provides an explanation of the procedure ensuring understanding prior to commencing
Element 5: Demonstrates relevant and current knowledge of Information Technology as it relates to Radiation Therapy	
Indicators	**Cues**
1. Demonstrates knowledge of and complies with legislative obligations relating to clinical data	Knowledge of legislative obligations and standards about clinical data, including privacy, ownership, storage, retention and destruction of patient data
2. Demonstrates relevant and current knowledge of information technology associated with radiation therapy	Knowledge of information systems, including, but not limited to, Treatment Planning Systems, Radiation Oncology Information Systems, Verification Image Systems and Electronic Medical Records
	Understands the interoperability and data transfer processes between systems
	Uses clinical information systems to accurately document patient's planning and treatment
3. Manages clinical information within a digital quality framework	Identifies and responds to data system outages and implements down-time and restoration procedures

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Standard 3b.2 Demonstrates the broad and relevant knowledge of the practice of Radiation Therapy

This standard covers the clinical application of theoretical knowledge of radiation therapy. It covers positioning, simulation, image interpretation, applications and uses of the different imaging modalities, and the correct use of radiation therapy equipment.

Element 1: Demonstrates knowledge of the principles of Radiation Therapy and their clinical application	
Indicators	**Cues**
1. Demonstrates knowledge of patient assessment (including suitability of request), positioning and immobilisation and suitability of request	Assesses the patient to determine fitness to proceed
	Prepares the patient for the procedure, including an explanation of the procedure
	Positions the patient appropriately for the treatment considering factors including the treatment intent, patient condition and treatment technique
	Uses appropriate ancillary equipment to provide patient immobilisation and stabilisation
	Undertakes all procedures according to infection control principles
	Follows the Australian Commission for Quality and Safety in Health Care's procedure to ensure correct patient, correct site and correct procedure, including: - Verification of patient information - Matching the information against the request form or consent form - Time out immediately prior to the procedure - Post-procedure confirmation and documentation
2.Demonstrates knowledge of the use of bolus materials in radiation therapy	Applies appropriate bolus materials for the treatment conditions

3. Demonstrates knowledge of imaging processes	Advises requirements for imaging modalities
	Uses imaging equipment to acquire appropriate images for planning purposes
	Determines and applies the correct protocols for treatment verification imaging
4. Evaluates images acquired during radiation therapy planning and treatment	Determine whether the images produced meet the requirements
	Determine whether further imaging is required
	Assesses patient anatomy on verification images and takes appropriate corrective actions if outside tolerance prior to treatment delivery.
	Recognises normal and abnormal appearances of images and conveys this information appropriately to the relevant health professional, including documentation
5. Demonstrates knowledge of the principles, clinical application and performance of Computed Tomography (CT)	Understands the range of procedures performed within CT
	Understands the effect of adjusting radiation exposure factors on the formation of CT images
	Understands and adjusts CT equipment configurations appropriate to acquire appropriate images for treatment planning
	Confirms correct patient-side and position markers and applies contrast phase and anatomical indicators
	Archives images according to local protocols
	Applies radiation safety principles, including justification for the procedure and ALARA principles in CT

6. Demonstrates knowledge, clinical application and performance of plan construction	Applies the correct protocol to develop plans that meet treatment goals
7. Demonstrates knowledge of organ dose tolerances	Demonstrates knowledge of organs at risk and applies the appropriate tolerances
	Ensures dose to organs at risk is documented
8. Demonstrates knowledge of and clinical application of the operation of equipment	Understands the applications and limitations of radiation therapy equipment
	Ensures appropriate and safe use of the correct radiation therapy equipment
	Can describe the components of a linear accelerator – MLC, jaws, gantry, on board imaging, wedging etc.
	Takes appropriate verification images and uses clinical knowledge to determine any corrective actions prior to treatment
	Uses radioisotopes/brachytherapy/HDR unit, knowledge of role in treatment and limitations
	Uses SXR and understands the operation, knowledge of its use in treatment and limitations
	Recognises faulty or unsafe equipment and responds appropriately
9. Demonstrates knowledge of quality assurance (QA) procedures	Knowledge and application of procedures used in quality assurance, and follows workplace policies and procedures
	Understands and applies plan quality assurance processes
10. Demonstrates knowledge of monitoring and care of the patient	Ensures that the patient is monitored throughout the course of treatment and referred to appropriate members of the healthcare team as required

	Demonstrates understanding of how changes to patients' condition can impact dosimetry and takes appropriate corrective action
	Acknowledges and responds to the condition of the patient, particularly the deteriorating patient
10. Demonstrates knowledge of the principles of patient management	Understand the patient's clinical pathway and acts accordingly
	Works with the team to ensure timely delivery of procedures
11.Demonstrates knowledge of the principles, clinical application, and performance of radiation therapy across the human lifespan	Understands and applies knowledge of the implications and importance of radiation dose control in a paediatric context
	Understands and applies effective communication strategies dependent on developmental level of the child
	Understands and applies knowledge of and equipment configurations and immobilisation aids for elderly patients
	Understands and applies effective communication strategies for elderly patients
	Understands the issues around consent and substitute decision makers for younger and elderly patient cohorts
Element 2: Demonstrates an understanding of Radiation Therapy procedures to contribute effectively to interprofessional team decision – making	
1.Demonstrates knowledge of evidence-based and emerging techniques in radiation therapy	Applies knowledge of contemporary treatments
2.Contributes to the development of radiation therapy protocols	In collaboration with the health care team, contributes to the development of radiation therapy protocols and procedures

Domain 3c: Knowledge and Understanding (Nuclear Medicine)

Standard 3c.1	Demonstrates a broad and relevant knowledge and understanding of the key theoretical concepts underpinning Nuclear Medicine Imaging
Standard 3c.2	Demonstrates a broad and relevant knowledge of the practice underpinning Nuclear Medicine Imaging

This domain includes the core knowledge base, principles of medical radiation and concepts that are required in the practice of medical radiation science. The MRP is required to understand the principles of radionuclide and radiopharmaceutical production with the understanding of working nuclear medicine imaging equipment and the benefits and risks associated with nuclear medicine and theranostic procedures. An understanding of key principles of nuclear medicine and Positron Emission Tomography (PET) practice is demonstrated. Practice will adhere to the ALARA principle. Knowledge of anatomy, physiology and pathology is used to determine the imaging pathway best suited to answer the clinical question.

Standard 3c.1 Demonstrates a broad and relevant knowledge and understanding of the theoretical concepts underpinning nuclear medicine

This standard deals with the knowledge base required by MRP's to practice efficiently and safely. It covers knowledge of physics, anatomy, pathology, patient behavioural characteristics, and information technology.

Element 1: Demonstrate a broad and relevant knowledge of the science of nuclear medicine	
Indicators	**Cues**
1. Demonstrates knowledge of the production and analysis / interpretation of Nuclear Medicine images	Knowledge and application of the physics of ionising and non-ionising image production
	Understands the effects of the interactions Alpha, Beta, Gamma and positron emissions have with matter and how this contributes to image formation and theranostics
	Knowledge and use of the types of equipment used in nuclear medicine
	Knowledge of positioning for nuclear medicine procedures, including the use of modified techniques
	Adheres to principles of image analysis, critique and quality assurance

	Distinguishes between normal and abnormal appearances and communicates these findings according to local protocols
	Determine whether the bio distribution of radiopharmaceuticals is normal, altered, or unexpected
	Understands the rationale for selection of each diagnostic modality for the diagnosis of disease
2. Prepare and assess the purity of radiopharmaceuticals	Perform the elution and quality control of the radioisotope generator.
	Assay the eluate and prepare radiopharmaceuticals ensuring critical procedure features are observed, such as correct volume, radioactivity and particle count
	Perform quality control on radiopharmaceuticals and assess for patient use
3. Perform in vivo and in vitro laboratory procedures	Perform safe aseptic blood labelling procedures
	Perform in vivo laboratory procedures
	Implement appropriate methods to determine if results of laboratory procedures are normal, altered or unexpected and communicate these findings according to local protocols
	Understand and apply laboratory procedures which may include the use of sample counters such as well counters, operation of centrifuges, and use of fume hoods
4. Demonstrates knowledge of risk-benefit analysis involved in the practice of nuclear medicine imaging	Justifies the imaging request, seeking further information from the referring clinician or reporting medical specialist as required
	Selects appropriate radiopharmaceutical, dose and imaging protocol based on a consideration of all relevant risks

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	Applies the ALARA principle
	Refers to evidence-based imaging guidelines e.g. diagnostic imaging (3) or iRefer (4)
5. Demonstrates knowledge of the use of medical terminology as it relates to nuclear medicine	Understands and applies medical terminology in Nuclear Medicine
	Interprets a nuclear medicine imaging request, understanding all terminology used
	Communicates appropriately with patients about radiation safety
6. Demonstrates knowledge, principles, application and limitations of equipment and instrumentation	Identifies all components of the imaging system
	Understands the function of each item of equipment with regards to image production
	Sets up and uses the nuclear medicine imaging equipment safely and appropriately for each requested examination
	Understands the function and limitations of dose calibrators, well counters and survey meters
Element 2: Demonstrate a broad and relevant knowledge of physical sciences as it relates to nuclear medicine imaging	
Indicators	**Cues**
1. Demonstrates knowledge of the physical principles of nuclear medicine	Understands the physics of radiation, application and interaction with matter
	Understand the principles of image formation across all nuclear medicine modalities
2. Demonstrates knowledge of principles of radiation dosimetry	Understands and interprets the importance of radiation dose
	Understands and applies the principles of nuclear medicine in clinical practice
	Adapts and modifies protocols on SPECT or PET scanners based on radiopharmaceutical dose administered

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	or other variables such as pathology or body habitus in any given situation
	Calculate the dose and decay of radiopharmaceuticals used in examinations and therapies
	Recognise the difference between therapeutic and diagnostic doses, as it affects the patient, health practitioner and the public
	Deliver appropriate dosage of radiopharmaceutical using safe aseptic techniques for each patient
	Use appropriate radiopharmaceutical delivery systems
	Understanding PET and SPECT dosimetry and its use in calculating doses for theranostics
3. Demonstrates knowledge, principles, application and limitations of equipment and instrumentation	Understands the function of equipment used for image production.
	Sets up and uses nuclear medicine equipment safely and appropriately for each requested examination
Element 3: Demonstrate a broad and relevant knowledge of biological sciences as it relates to nuclear medicine imaging	
Indicators	**Cues**
1. Demonstrates knowledge of the anatomy and physiology of the human body	Understands the anatomy and physiology of the human body and can relate this knowledge to anatomy demonstrated on nuclear medicine and cross-sectional imaging
2. Demonstrates knowledge of pathophysiology	Understands the signs and symptoms of disease as they relate to nuclear medicine practice
	Recognises and understands pathological appearances on Nuclear Medicine images

	Understands the mechanisms of injury and their manifestation on Nuclear Medicine images
3. Demonstrates a knowledge of radiobiology	Articulates the biological and cumulative effects of radiation dose including the deterministic and stochastic effects
	Optimises Nuclear Medicine imaging parameters and imaging procedures in accordance with the ALARA Principle
	Understands the risks associated with foetal irradiation
	Effectively communicates radiobiology and safety concepts to patients
4. Demonstrates knowledge of pharmacology related to Nuclear Medicine	Understands the characteristics, indications, contra indications and potential risk factors and side effects of pharmaceuticals used in Nuclear Medicine (e.g contrast media, Frusemide etc).
	Understands and adheres to the Quality Use of Medicines (QUM) framework
	Understands the medication management cycle, including prescription, provision of patient information, administration, monitoring for response, and pharmaceutical storage (5)
	Understands the need for and undertakes screening of patients for risk factors and co-morbidities which may be exacerbated by administration of contrast media and other relevant pharmaceuticals
	Recognises and responds to adverse reactions, including the capability of performing basic life support, the use of drugs used in the emergency situation, the MRP's role in an emergency response team and escalation processes following workplace procedures.
Element 4: Demonstrates a broad and relevant knowledge of humanities and behavioural sciences as it relates to nuclear medicine	
Indicators	**Cues**

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1. Demonstrates knowledge of sociological and psychological aspects of patient centred care	Understands that patients may have concerns relating to their condition, the imaging procedure and the potential diagnosis.
	Understands that patients will have anxieties and concerns relating to the investigation
2. Demonstrates knowledge of behavioural and communication sciences, as they apply to the care of patients undergoing Nuclear Medicine	Understands that patients will react to, and cope differently with various nuclear medicine procedures
	Understands the patient's communication and behaviour may change in response to their illness or injury
	Demonstrates empathy and understanding for the patient
3. Recognises the roles of physical and psychological preparation for imaging procedures	Provides an explanation of the procedure, ensuring the patient understands any instructions prior to the commencement of the procedure.
	Adapts the procedure or immobilisation devices to ensure patient comfort.
Element 5: Demonstrates a relevant and current knowledge of Information Technology in a Clinical Setting	
Indicators	**Cues**
1. Demonstrates knowledge of and complies with legislative obligations relating to clinical data	Knowledge of legislative obligations and standards about clinical data, including privacy, ownership, storage, retention and destruction of patient data,
2. Demonstrates knowledge of information technology in a clinical setting	Knowledge of digital network design and the inter-operability between digital clinic systems, including, but not limited to, Health Centre / Hospital Information Systems, Radiology Information Systems, Picture Archiving and Communication Systems and Electronic Medical Records
	Uses clinical information systems to accurately document the patient's demographic data, medical imaging request and patient history, procedure

	performed, clinical matching process (correct patient, procedure, side), clinical notes and alerts.
	Ensures clinical notes and images are archived and progressed through the digital clinical workflow process for reporting and review.
	Ensures that correct patient demographic data is associated with the correct patient records and images.
3. Operates Clinical Information Systems	Identifies and responds to data errors, including mis-matched patient demographic data and images.
4. Manages clinical information within a digital quality framework	Identifies and responds to data system outages and implements down-time and restoration procedures.

Standard 3c.2 Demonstrates a broad and relevant knowledge of the practice underpinning nuclear medicine

This standard refers to the clinical application of theoretical knowledge of nuclear medicine. It covers patient preparation, positioning, radiation dose selection, operation of nuclear medicine equipment, image post-processing and archiving, image analysis and interpretation.

Element 1: Demonstrates a thorough knowledge of the principles of nuclear medicine imaging and their clinical application	
Indicators	**Cues**
1. Demonstrates knowledge of patient assessment and procedure planning to ensure the procedure is appropriate to the presenting diagnostic query.	Plans the procedure according to the individual patient, accounting for any modifications which may be required
	Ensures that the request is complete, with all required information, and is issued by an authorised health care provider.
	Understands the responsibility to recognise and act when an incorrect or inappropriate examination is requested to fulfil the ALARA obligation to justify the use of radiation in the interest of the patient's care.
	Discusses imaging techniques and alternative imaging strategies with the

6 Reference: Australian Commission for Quality and Safety in Health Care: Ensuring correct patient, correct site and correct procedure in Radiology, Nuclear Medicine, Radiation Therapy and Oral Surgery, accessed on 09.01.2022 from ECPCSCP_FactSheet.pdf (safetyandquality.gov.au)	requesting health practitioner or reporting medical specialist when indicated.
	Follows the Australian Commission for Quality and Safety in Health Care's (6) procedure to ensure correct patient, correct site and correct procedure, including: - Verification of patient information - Matching the information against the request form or consent form - Time out immediately prior to the procedure - Post-procedure confirmation and documentation
	Prepares the patient for the procedure, including an explanation of the procedure and arranging for the removal of clothing / accessories that may cause artefacts.
2. Demonstrates knowledge of patient positioning and immobilisation	Positions the area being examined considering anatomical landmarks, to ensure demonstration of the required anatomical structures
	Uses accessory positioning and immobilisation devices to ensure patient comfort.
3. Demonstrates knowledge of the principles, clinical application and performance of nuclear medicine procedures and therapies	Understands and applies knowledge across all nuclear medicine modalities: • Planar • SPECT • SPECT/CT • PET/CT • PET/MRI • Post processing
	Ensures effective communication within the health care team to ensure the procedure is planned and image acquisition is co-ordinated

	Acquires quality nuclear medicine images, reviewing prior to distribution
	Modifies imaging techniques to account for the patient's condition, body habitus and needs
	Has a thorough knowledge of Gamma camera detection and the impact of collimators and different energy isotopes
	Has thorough knowledge of Positron Emission tomography image, artefact formation and the impact of post processing
	Ensures clinical notes, radiation dose, and images are archived according to local protocols
4. Demonstrates a thorough knowledge of the principles of radio pharmacy	Uses safe, aseptic technique for the delivery of all radiopharmaceuticals
5. Demonstrates the ability to undertake in vivo and in vitro laboratory techniques	Knowledge and application of • Elution, assay and quality control of generator systems • Preparation and quality control of radiopharmaceuticals prior to patient use • Appropriate radiopharmaceutical delivery systems for both diagnostic and therapeutic doses • Biodistribution, and able to determine whether it is normal, altered or unexpected • Aseptic blood labelling techniques • In vivo laboratory procedures • Methods to determine if results are normal, altered or expected
	Recognise the differences between diagnostic and therapeutic doses

6. Demonstrates a thorough knowledge of the principles, clinical application and performance of general nuclear medicine imaging, SPECT, SPECT/CT and PET/CT	Perform planar, SPECT/CT and PET/CT studies, including positioning the patient for the best diagnostic outcome
	Has a thorough knowledge of the production of images using a gamma camera and the effect of isotope energies, collimator choice, resolution, time to acquire and artefacts
	Has a thorough knowledge of the production of images using a PET/CT, the importance of attenuation correction, half-lives of isotopes, staff and patient dosimetry
	Perform and evaluate anatomical/attenuation correction of CT scan
	Process data image sets, including multi-planar reformats and volume imaging
	Apply the principles underpinning nuclear medicine therapies to practice and maintain currency with vendor specific software advances
	Prepare the patient and delivery systems for nuclear medicine radiopharmaceutical therapies
	Delivery systems may include but are not limited to intra-arterial, intravenous, oral, subcutaneous and inhalation
	Planar, SPECT/CT and PET/CT studies may include but are not limited to bone, myocardial perfusion, gated heart pool, lung perfusion/ventilation, thyroid, and renal studies as well as oncologic, cardiac and neurologic PET studies
6. Demonstrates knowledge of the principles, clinical application, and performance of routine diagnostic Computed Tomography (CT) where appropriate Radiation Use Licence is held	Understands the range of procedures performed in CT and recognises when an alternative medical imaging modality may be more appropriate.
	Ensures that authorisation of examination meets local Radiation Management Plan requirements

	Understands the effect of adjusting radiation exposure factors and scanning parameters on the formation of CT Images.
	Understands and adjusts CT equipment configurations appropriate for the patient presentation and clinical request including: Patient position (head-first / feet-first, other orientation) - Radiation dose modulation - X-ray beam width - Scan Field of View - Helical Pitch - Scan Range - Reconstruction algorithms - Intravenous contrast agents, including injector settings - Oral contrast agents, including volume, dilution and timing. - Respiration phase
	Understands the requirements of performing CT, including scans of: - Head - Neck - Chest - Abdomen - Pelvis - Spine - Vascular System - Musculoskeletal System - With and without contrast agents
	Understands the requirement for processing CT data sets, including multiple plane 2D and 3D image reformation.

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	Applies digital annotation, including anatomical, position, correct patient-side indicators, and contrast phase.
	Ensures clinical notes, radiation dose, contrast media volume and type and images are archived according to local protocols.
7. Demonstrates knowledge of the principles, clinical application and performance of medical imaging across the lifespan	Understands and applies knowledge of the implications and importance of radiation dose control and weight adjusted radiopharmaceutical dose reduction in a paediatric context
	Understands paediatric specific anatomy and pathology.
	Understands and applies knowledge of equipment configurations and immobilisation aids for paediatric patients
	Understands and applies effective communication strategies dependent on developmental level of the child.
	Understands and applies knowledge of and equipment configurations and immobilisation aids for older patients
	Understands and applies effective communication strategies for older patients.
	Understands the issues around consent and substitute decision makers for younger and older patient cohorts.
8. Demonstrates knowledge of patient monitoring and care of the deteriorating patient	Understands and applies knowledge of patients' physiological status, including a review of the patient's clinical history and participation in hand-over processes.
	Understands and applies knowledge of physiological monitoring equipment and monitors the patient's status throughout the medical imaging procedure.
	Recognises and responds to the deteriorating patient (including patient's experiencing adverse contrast media

	reactions), following local protocols, which includes: - the capability of performing basic life support - understands and applies knowledge of drugs used in the emergency situation - understands and applies knowledge of the MRP's role in an emergency response team
9. Uses established criteria to assess that image quality is of an acceptable standard	Assesses images to ensure the following image quality criteria are met: • Patient demographic data is consistent with imaging request and procedure matching process • Anatomical markers and annotations are correct and do not obscure anatomical or pathological details. • Image artefacts do not unduly obscure anatomical or pathological details or mimic disease. • The required anatomical area is included in the projection / scan range. • The patient has been correctly positioned for the procedure. • The image parameters set provide a diagnostic image. • Pathology or anatomical variants are noted, according to local protocol.
	An assessment of the need to repeat or complete further imaging is made, which may include consultation with the reporting medical specialist.
8. Assesses images for the presence of urgent pathological conditions	Recognises normal and abnormal biodistribution or image appearances and urgent pathological conditions on images

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	and conveys this information appropriately to the reporting medical specialist or requesting health care professional, including documentation, in a timely manner, according to local protocols.
9. Demonstrates knowledge and clinical applications o of nuclear medicine	Provides advice to other healthcare professionals about the benefits and limitations of the range of nuclear medicine procedures
10. Contributes to the development of nuclear medicine protocols	In collaboration with the health care team, contributes to the development of medical imaging protocols and equipment configurations to minimise radiation dose and maximise diagnostic value.

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Domain 3d: Knowledge and Understanding (MRI)

This domain should be read in conjunction with Domain 3a, 3b or 3c (whichever is relevant) for MRPs using MRI.

• Standard 3d.1	• Demonstrates a broad and relevant knowledge and understanding of the key theoretical concepts underpinning MRI
• Standard 3d.2	• Demonstrates a broad and relevant knowledge of the practice underpinning MRI.
• Standard 3d.3	• Demonstrates a broad and relevant knowledge of MRI safety

This domain includes the additional knowledge, principles and concepts that are required in the practice of Magnetic Resonance Imaging (MRI). Radiographers, radiation therapists and nuclear medicine technologists are required to understand the principles of MRI physics, image production and acquisition, and the benefits and risks to patients associated with MRI Imaging if MRI is included within their practice.

Standard 3d.1 Demonstrates a broad and relevant knowledge and understanding of the theoretical concepts underpinning MRI

This standard deals with the knowledge base required to practice efficiently and safely in MRI. It covers knowledge of physics, anatomy, pathology, patient behavioural characteristics, and information technology.

Element 1: Demonstrate a broad and relevant knowledge of the science of MRI	
Indicators	**Cues**
1. Demonstrates knowledge of the production, acquisition, optimisation, and analysis of MRI images	Knowledge and application of MRI physics
	Knowledge of and the use of the types of equipment used in MRI, including MRI coils.
	Knowledge and understanding of MRI image production, image artefacts and pathology mimics
	Knowledge and understanding of MRI sequences and applications
	Adheres to principles of image acquisition, optimisation, analysis, critique, and quality assurance
	Distinguishes between normal and abnormal appearances and communicates these findings according to local protocols

	Understands the rationale for selection of each diagnostic modality for the diagnosis of disease
2. Demonstrates knowledge of risk-benefit analysis involved in the practice of MRI	Justifies the imaging request, seeking further information from the referring clinician or reporting medical specialist as required
	Selects appropriate imaging protocol based on a consideration of all relevant factors
	Refers to evidence-based imaging guidelines
	Ensures that the authorisation of examinations meets local MRI Safety management plans
Element 2: Demonstrate a broad and relevant knowledge of physical sciences as it relates to MRI	
Indicators	**Cues**
1. Demonstrates knowledge of the physical principles of MRI	Understands the physics of magnetic fields, magnetic resonance, its application, and interaction with matter.
	Understand the principles of image formation, imaging artefacts and the potential for biological effects across all MRI applications.
2. Demonstrates knowledge of principles of MRI in clinical practice	Understands and applies the principles of MRI to clinical practice
	Applies knowledge of the principles of MRI physics and its potential for biological effects
	Adapts and modifies MRI parameters based on the variables present in any given situation
3. Demonstrates knowledge, principles, application and limitations of equipment and instrumentation	Understands magnet and coil design and application of use for optimal image acquisition.
	Understands the function of MRI equipment used for image production and optimisation.
	Sets up and uses MRI equipment safely and appropriately for each requested examination, including the use of cleaning equipment to ensure infection prevention.
Element 3: Demonstrate a broad and relevant knowledge of biological sciences as it relates to MRI	

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1. Demonstrates knowledge of the anatomy and physiology of the human body	Understands the anatomy and physiology of the human body and can relate this knowledge to anatomy and physiology demonstrated MRI images, including 2D, 3D and functional imaging.
2. Demonstrates knowledge of pathophysiology	Understands the signs and symptoms of disease as they relate to MRI practice
	Recognises and understands pathological appearances on MRI
	Understands the mechanisms of injury and their manifestation on MRI
3. Demonstrates knowledge of pharmacology related to MRI.	Understands the characteristics, indications, contraindications and potential risk factors and side effects of pharmaceuticals used in MRI (e.g., MRI contrast media)
	Understands the diagnostic roles of different contrast media, and their appearance on images.
	Understands the implications for contrast media administration during pregnancy and breastfeeding.
	Understands the potential limitations of renal dialysis in removing Gadolinium-based contrast from circulation.
	Understands the difference in contrast chelates, cyclic vs linear, and the relative stability of each.
Element 4: Demonstrates a broad and relevant knowledge of humanities and behavioural sciences as it relates to MRI	
Indicators	**Cues**
1. Demonstrates knowledge of sociological and psychological aspects of patient centred care	Understands that patients may have concerns relating to their condition or the imaging procedure.
	Understands that patients will have anxieties and concerns relating to the investigation and adapts communication accordingly
2. Demonstrates knowledge of consent processes Recognises the roles of physical and	Provides an explanation of the procedure, ensuring the patient understands any

psychological preparation for imaging procedures	instructions prior to the commencement of the procedure

Standard 3d.2 Demonstrates a broad and relevant knowledge of the practice underpinning MRI

This standard refers to the clinical application of theoretical knowledge of MRI. It covers patient preparation, positioning, radiation dose selection, operation of MRI equipment across a range of settings, image post-processing and archiving, image analysis and interpretation.

Element 1: Demonstrates a thorough knowledge of the principles of MRI and their clinical application	
Indicators	**Cues**
1. Demonstrates knowledge of patient assessment and procedure planning to ensure the procedure is appropriate to the clinical indication.	Plans the procedure according to the individual patient, accounting for any modifications which may be required
	Ensures that the request is complete, with all required information, and is issued by an authorised health care provider.
	Understands the responsibility to recognise and act when an incorrect or inappropriate examination is requested to fulfil the obligation to justify an MRI examination in the interest of the patient's care.
	Discusses imaging techniques and alternative imaging strategies with the requesting health practitioner or reporting medical specialist when indicated.
	Follows the Australian Commission for Quality and Safety in Health Care's (6) procedure to ensure correct patient, correct site and correct procedure, including: - Verification of patient information - Matching the information against the request form or consent form - Time out immediately prior to the procedure - Post-procedure confirmation and documentation

	Prepares the patient for the procedure, including: - Explanation of the procedure - MRI safety briefing and pre-procedure implantable device check. - Facilitating changing into a gown where necessary - Applies physiological monitoring devices where required.
2. Demonstrates knowledge of patient positioning and immobilisation	Uses accessory positioning and immobilisation devices to ensure patient comfort.
3. Demonstrates knowledge of principles, clinical application, and performance of MRI in a range of clinical settings. **	Understands the requirement of performing MRI, in a range of clinical settings which may include: - An MRI, Radiation Therapy or Nuclear Medicine department in a community or hospital setting - Operating Theatre Setting - Forensic setting
	Understands the range of clinical applications for MRI including: - Brain - Base of skull - IAMs - Orbits - Spine - Brachial Plexus - Cardiac imaging - Mediastinum - Chest wall - Breasts - Abdomen, including Liver, Pancreas, Biliary tree, Small Bowel studies

	- Pelvis, including Cervix, Uterus, Prostate, Rectum, Anal fistula studies - Musculo-Skeletal - Obstetrics & Gynaecology - Paediatrics & Neonatal - Small Parts - Vascular - Flow Quantification ****Not applicable to Radiation Therapy*
	Establishes appropriate MRI imaging protocols required for the examination requested, considering the clinical indications for the procedure, the clinical question the study aims to answer, the clinical condition of the patient and any mechanisms of injury according to local departmental protocols.
	Understands and adjusts equipment configurations, including: - Coil selection - Patient position / orientation - Pulse sequence types, including 2D, 3D, fast spin echo, gradient echo, motion-insensitive options, - Scan plane - Field of view - Phase/Frequency direction - Phase oversampling - Slice thickness - Slice spacing - Chemical shift direction - Pulse sequence timing: TR, TE, TI and effects on imaging weighting - Echo train length - Echo spacing

	- RF (radio frequency) flip angle - Intensity correction - Noise/sharpness/smoothing algorithms - Saturation band placement - Shim box placement - Matrix size - RF bandwidth - Gating options, including respiratory bellows, respiratory navigation, peripheral pulse oximetry - Diffusion imaging B value - NEX (number of excitations) - Parallel imaging techniques, including GRAPPA and SNESE - Fat saturation - SAR (Specific Absorption Rate) mode - Time-varying gradient modes (dB/dt)
	Understands and applies knowledge of equipment settings, functions, optimisations, and adjustments to ensure optimum imaging
	Applies digital anatomical, anatomical measurements, position indicators or patient-side markers where required.
	Ensures clinical notes, and images are archived according to local protocols.
4.Demonstrates knowledge of the principles, clinical application and performance of MRI for elderly patients.	Understands and applies knowledge of and equipment configurations and immobilisation aids for elderly patients
	Understands and applies effective communication strategies for elderly patients.
	Understands the issues around consent and substitute decision makers for elderly patient cohorts.

	Recognises normal and abnormal appearances and urgent pathological conditions on diagnostic images and conveys this information appropriately to the reporting medical specialist or requesting health care professional, including documentation, in a timely manner, according to local protocols
4. Assesses images for the presence of urgent pathological conditions	Assesses images to ensure the following image quality criteria are met: -Patient demographic data is consistent with imaging request and procedure matching process -Anatomical markers are correct and do not obscure anatomical or pathological details. -Image artefacts do not unduly obscure anatomical or pathological details or mimic disease. -The required anatomical area is included in the MRI scan range. -The image parameters set provide a diagnostic image. -Pathology or anatomical variants are noted, according to local protocol. An assessment of the need to repeat or complete further MRI is made, which may include consultation with the reporting medical specialist.
5. Demonstrates knowledge and clinical applications of the full range of MRI modalities	Provides advice to other healthcare professionals about the benefits and limitations of the range of MRI modalities
6. Contributes to the development of MRI protocols	In collaboration with the health care team, contributes to the development of MRI protocols and equipment configurations to maximise diagnostic value.

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Standard 3d.3: Demonstrates a broad and relevant knowledge of MRI safety	
Indicators	**Cues**
1. Demonstrates knowledge of the biological dangers involved with MRI	Understands the potential impact of the static magnetic field on ferromagnetic objects
	Understands SAR (Specific Absorption Rate) and heating phenomena including application of national/international standards
	Understands gradient use and peripheral nerve stimulation. including standards
	Understands acoustic noise dangers and hearing protection including application of national/international standards
	Understands and manages patient risks associated with implanted devices
2. Demonstrates knowledge of MRI safety systems	Knowledge of magnetic fields and how they relate to MRI safety and patient safety
	Understanding and managing the MRI Safety Zoning system
	Understanding rationale and procedure for screening all staff / patients who enter Zones 3 and 4
	Understanding of Level 1 and Level 2 MRI Personnel and supervision requirements for non-MRI personnel
	Knowledge and ability of how to investigate, escalate and document the MRI safety status of implants, devices, objects and equipment
	Knowledge and ability to initiate emergency protocols in the event of a magnet quench.
3.Demonstrates a knowledge of local, state and national MRI standards that contribute to a safe work environment	Operates in compliance with relevant local, state or national legislation and guidelines relating to MRI practice.

Domain 3e: Knowledge and Understanding (Medical Sonography)

This domain should be read in conjunction with Domain 3a, 3b or 3c (whichever is relevant) for MRPs using ultrasound.

Standard 3e.1	Demonstrates a broad and relevant knowledge and understanding of the key theoretical concepts underpinning Medical Sonography
Standard 3e.2	Demonstrates a broad and relevant knowledge of the practice underpinning Medical Sonography.

This domain includes the core knowledge base, principles of ultrasound physics, and concepts that are required in the practice of medical sonography. Sonographers are required to understand the principles of sound production, interaction with the human body and image production and the benefits and risks associated with medical sonographic imaging procedures. An understanding of key principles of medical sonographic practice is demonstrated. Knowledge of anatomy, physiology and pathology is used to determine the imaging pathway best suited to answer the clinical question.

Standard 3e.1 Demonstrates a broad and relevant knowledge and understanding of the theoretical concepts underpinning sonography

This standard deals with the knowledge base required by Sonographers to practice efficiently and safely. It covers knowledge of physics, anatomy, pathology, patient behavioural characteristics, and information technology.

Element 1: Demonstrate a broad and relevant knowledge of the science of Medical Sonography	
Indicators	**Cues**
1. Demonstrates knowledge of the production, acquisition, optimisation and analysis of medical images	Knowledge and application of the physics of sound, the interaction of sound waves with matter and sonographic image production
	Knowledge of and use of the types of equipment used in medical sonography
	Knowledge and application of positioning for imaging procedures, including the use of modified techniques
	Adheres to principles of image acquisition, optimisation, analysis, critique and quality assurance
	Distinguishes between normal and abnormal appearances and communicates these findings according to local protocols

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	Understands the rationale for selection of each diagnostic modality for the diagnosis of disease
2. Demonstrates knowledge of risk-benefit analysis involved in the practice of medical sonography. 7 Australasian Society for Ultrasound in Medicine (ASUM), Standards of Practice https://www.asum.com.au/standards-of-practice/ accessed on 14/02/2022	Justifies the imaging request, seeking further information from the referring clinician or reporting medical specialist as required
	Selects appropriate imaging protocol based on a consideration of all relevant
	Refers to evidence-based imaging guidelines e.g. Australian Society of Ultrasound In Medicine *Standards of Practice* available at ASUM Standards of Practice
3. Demonstrates knowledge of the use of medical terminology as it relates to medical sonography	Interprets an imaging request form, understanding terminology and abbreviations used. Understands and applies medical terminology in Medical Sonography
	Understands and applies medical terminology in Medical Sonography
	Communicates appropriately with patients about the safety of medical sonography.
Element 2: Demonstrate a broad and relevant knowledge of physical sciences as it relates to Medical Sonography	
Indicators	**Cues**
1. Demonstrates knowledge of the physical principles of medical sonography	Understands the physics of sound, application, and interaction with matter.
	Understand the principles of image formation, imaging artefacts and the potential for biological effects across all Medical Sonography applications.
2. Demonstrates knowledge of principles of sonography in clinical practice	Understands and applies the principles of medical sonography to clinical practice
	Applies knowledge of the principles of ultrasound physics and its potential for biological effects
	Adapts and modifies sonographic parameters based on the variables present in any given situation

3. Demonstrates knowledge, principles, application and limitations of equipment and instrumentation	Understands transducer design and application of use for optimal image acquisition.
	Understands the function of ultrasound equipment used for sonographic image production and optimisation.
	Sets up and uses medical sonographic equipment safely and appropriately for each requested examination, including the use of cleaning equipment ensure infection prevention.
Element 3: Demonstrate a broad and relevant knowledge of biological sciences as it relates to Medical Sonography	
Indicators	**Cues**
1. Demonstrates knowledge of the anatomy and physiology of the human body	Understands the anatomy and physiology of the human body and can relate this knowledge to anatomy demonstrated on sonographic images, including 2D, 3D and Doppler imaging.
2. Demonstrates knowledge of pathophysiology	Understands the signs and symptoms of disease as they relate to sonographic practice
	Recognises and understands pathological appearances on medical sonographic images
	Understands the mechanisms of injury and their manifestation on medical sonographic images
4. Demonstrates knowledge of pharmacology related to medical sonography.	Understands the characteristics, indications, contra indications and potential risk factors and side effects of pharmaceuticals used in Medical Sonography (e.g. sonographic contrast media)
Element 4: Demonstrates a broad and relevant knowledge of humanities and behavioural sciences as it relates to Medical Sonography	
Indicators	**Cues**
1. Demonstrates knowledge of sociological and psychological aspects of patient centred care	Understands that patients may have concerns relating to their condition, the imaging procedure and the potential diagnosis.
	Understands that patients will have anxieties and concerns relating to the investigation and adapts communication accordingly

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2. Demonstrates knowledge of consent processes Recognises the roles of physical and psychological preparation for imaging procedures	Provides an explanation of the procedure, ensuring the patient understands any instructions prior to the commencement of the procedure
	Obtains and documents consent for transvaginal or breast procedures, or procedures involving the examination of the external genitals, according to the Australian Commission for Quality and Safety in Health Care's (6) protocols.

Standard 3e.2 Demonstrates a broad and relevant knowledge of the practice underpinning Medical Sonography

This standard refers to the clinical application of theoretical knowledge of Medical Sonography. It covers patient preparation, positioning, operation of Medical Sonography equipment across a range of settings, image post-processing and archiving, image analysis and interpretation.

Element 1: Demonstrates a thorough knowledge of the principles of Medical Sonography and their clinical application	
Indicators	**Cues**
1.Demonstrates knowledge of patient assessment and procedure planning to ensure the procedure is appropriate to the presenting diagnostic query.	Plans the procedure according to the individual patient, accounting for any modifications which may be required
	Ensures that the request is complete, with all required information, and is issued by an authorised health care provider.
	Understands the responsibility to recognise and act when an incorrect or inappropriate examination is requested to fulfil the obligation to justify a sonographic examination in the interest of the patient's care.
	Discusses imaging techniques and alternative imaging strategies with the requesting health practitioner or reporting medical specialist when indicated.
	Follows the Australian Commission for Quality and Safety in Health Care's (6) procedure to ensure correct patient, correct site and correct procedure, including: - Verification of patient information

	- Matching the information against the request form or consent form - Time out immediately prior to the procedure - Post-procedure confirmation and documentation
	Prepares the patient for the procedure, including: - Pre-examination bladder filling, stomach filling and patient fasting, where required - Explanation of the procedure - Facilitating changing into a gown were necessary - Warming acoustic couplant gel to body temperature.
1. Demonstrates knowledge of patient positioning and immobilisation	Uses accessory positioning and immobilisation devices to ensure patient comfort.
3. Demonstrates knowledge of principles, clinical application, and performance of medical sonography in a range of clinical settings.	Understands the requirement of performing medical sonography, including mobile medical sonography, in a range of clinical settings which may include: - A Medical Sonography department in a community or hospital setting - Emergency Department - Obstetric / Gynaecology Department - Cardiology Department - Intensive Care Unit - Operating Theatre - Hospital Ward - Forensic setting
	Understands the range of clinical applications for sonography, and practices within scope of sonographic sub-speciality: - Abdominal

	- Breast - Cardiac & Lung - Musculo-Skeletal - Obstetrics & Gynaecology - Paediatrics & Neonatal - Small Parts - Vascular
	Establishes appropriate sonographic imaging protocol required for the examination requested, taking into account the clinical indications for the procedure, the clinical condition of the patient and any mechanisms of injury according to local departmental protocols.
	Understands and adjusts equipment configurations, including: - Transducer selection - Frequency selection - Image Gain (2D) - Time-Gain Compensation - Read and Write zoom functions - Depth adjustment - Focus adjustment - B- Mode - M Mode - Doppler Mode, including Colour, Continuous wave Doppler, Pulsed Wave and Duplex. - Pulse inversion mode (I believe this is used for contrast enhancement and not really part of the basic skillset) - Harmonic mode - 3D mode - Elastography functions

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	- Cineloops
	Understands and applies knowledge of equipment settings, functions, optimisations and adjustments to ensure optimum imaging
	Applies digital anatomical, anatomical measurements, position indicators or patient-side markers where required.
	Ensures clinical notes, and images are archived according to local protocols.
2. Demonstrates knowledge of the principles, clinical application and performance of medical sonography for elderly patients.	Understands and applies knowledge of and equipment configurations and immobilisation aids for elderly patients
	Understands and applies effective communication strategies for elderly patients.
	Understands the issues around consent and substitute decision makers for elderly patient cohorts.
	Assesses images to ensure the following image quality criteria are met: -Patient demographic data is consistent with imaging request and procedure matching process -Anatomical markers are correct and do not obscure anatomical or pathological details. -Image artefacts do not unduly obscure anatomical or pathological details or mimic disease. -The required anatomical area is included in the sonographic scan range. -The image parameters set provide a diagnostic image. -Pathology or anatomical variants are noted, according to local protocol. -An assessment of the need to repeat or complete further medical sonography is made, which may include

	consultation with the reporting medical specialist.
3. Assesses images for the presence of urgent pathological conditions	Recognises normal and abnormal appearances and urgent pathological conditions on diagnostic images and conveys this information appropriately to the reporting medical specialist or requesting health care professional, including documentation, in a timely manner, according to local protocols
4. Demonstrates knowledge and clinical applications of the full range of Medical Sonography modalities	Provides advice to other healthcare professionals about the benefits and limitations of the range of Medical Sonography modalities
5. Contributes to the development of Medical Sonography protocols	In collaboration with the health care team, contributes to the development of Medical Sonography protocols and equipment configurations to maximise diagnostic value.

Domain 4: Critical Thinking and Evaluation

Standard 4.1	Evaluates own clinical practice and responds to any performance issues identified
Standard 4.2	Analyses and responds to problems related to patient's procedure and care
Standard 4.3	Initiates and evaluates research outcomes and incorporates these into evidence-based practice where relevant

This domain encompasses the ability of the MRP to think critically, creatively and reflectively. It covers the use of effective evaluation methods for assessing each clinical situation and formulating an appropriate course of action. The ability to reflect critically on personal performance and review and modify when indicated, is an essential component of effective clinical practice. Research and evidence-based practice is a component of this domain.

Standard 4.1 Evaluates own clinical practice and responds to any performance issues identified

This standard relates to clinical reasoning and judgment and the MRP role in providing quality clinical services to patients. The MRP's ability to provide safe, high-quality care is dependent upon their ability to reason, think, and apply problem-solving skills to their clinical practice. Critical thinking is an essential skill in the ongoing provision of excellent clinical care.

Element 1: Ability to audit, reflect upon and review individual professional practice	
1. Audits practice by reflecting on, and reviewing performance	Undertakes regular self-evaluation and reflects on clinical practice methods
	Benchmarks personal practice
	Identifies and implements corrective actions
	Participates in patient safety review processes which may include audit of practice and participation in Mortality and Morbidity reviews
2. Recognises different sources of feedback on professional performance	Describes the reflective learning and peer review processes
	Seeks feedback from supervisors and peers with a goal of continual improvement

	Participates in self-assessment processes
	Participates in regular performance review processes

Standard 4.2 Analyses and responds to problems related to patient's procedure and care

This standard relates to the ability of MRPs to access and interpret clinical information and apply professional judgement to formulate an objective response. It looks at their capacity to recognise and define problems within the patient care setting, and to develop a strategy to solve these. It also incorporates evaluation of the proposed solution, a key component of continuous quality improvement.

Element 1: Identify problems/issues as they arise in clinical practice	
Indicators	**Cues**
1. Reflects on clinical practice to recognise potential problems/issues as they arise	Predicts potential problems/issues, reports/documents hazards/near misses and reacts appropriately to prevent the problem or minimise its effect
	Addresses problems/issues which directly impact on immediate workflow as they occur
2. Analyses the reason for the problem/issue	Ascertains and describes the cause of the problem/issue
	Analyses and describes factors which may lead to an escalation of the problem/issue
	Identifies all involved factors to ensure a comprehensive understanding of the problem/issue
Element 2: Apply clinical knowledge and experience to solve problems and ensure care is delivered to achieve best practice	
Indicators	**Cues**
1. Develops a plan for resolving the problem	Explores options to resolve the issue
	Applies critical thinking and problem-solving strategies when indicated
	Selects the most appropriate solution for the best possible outcome for the patient

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2. Uses a collaborative approach to reach a resolution	Communicates and consults with other parties as required to resolve issues
	Seeks the cooperation of others as required in the implementation of the agreed solution
Element 3: Monitors and reviews the issue and modifies solutions as required	
Indicators	**Cues**
1. Reviews the situation once a solution has been established and implemented	Reviews the situation to ensure that the solution is appropriate
	Identifies the need for further action if required
	Incorporates lessons learned from clinical incident reviews into own clinical practice

Standard 4.3 Evaluates and implements research outcomes and incorporates into practice where relevant

This standard deals with the ability of the MRP to critically evaluate published research and identify its strengths and weaknesses. It also includes judging the overall quality of research regarding its application to clinical practice and supporting the incorporation of research into clinical practice when appropriate.

Element 1: Evaluates the appropriateness of implementing research findings into practice	
Indicators	**Cues**
1. Analytical approach to research published	Critically evaluates research with respect to clinical questions
2. Newly gained knowledge is considered in the context of its application to current clinical practice	Demonstrates analytical skills when evaluating current research
	Shares, discusses and reviews knowledge obtained from conferences, workshops and seminars
Element 2: Applies research and evaluation findings to practice	
Indicators	**Cues**
1. Seeks to apply newly gained knowledge in the clinical environment	Considers how research findings could be implemented into clinical practice

	Seeks to propose local implementation of research findings into practice where appropriate
	Discusses research findings with colleagues
2. Engages in evidence-based practice	Facilitates evidence-based decision making to improve patient outcomes
	Applies an evidence-based approach to daily practice
	Uses evidence to support proposal of new protocols

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Domain 5: Service Delivery and Clinical Management

Standard 5.1	Management of quality issues relating to effective practice
Standard 5.2	Contributes to maintaining a safe working environment
Standard 5.3	Acts to preserve the safety of individuals and groups at all times
Standard 5.3	Plans resources needed for service delivery

Standard 5.1 Management of quality issues relating to effective practice

This standard encompasses the responsibility MRPs have for ensuring the quality of professional services is maintained and improved for the benefit of patients. It deals with quality control, quality assurance activities and audits, including those which are regulated through official accreditation pathways, those undertaken to ensure the equipment is functioning appropriately, those that ensure the imaging produced and/or therapeutic procedure delivered, is evidence informed best practice standard.

Element 1: Evaluates the quality of practice in the clinical setting	
Indicators	**Cues**
1. Understands the principles of quality assurance, clinical audit and risk assessment	Understands and applies quality assurance processes
	Recognises the need to monitor and evaluate practice to maintain high quality service and their role in risk management
	Contributes to the collection and maintenance of documented evidence of quality assurance activities
	Understands the role of audit and review as they relate to quality assurance
	Follows the risk management process and protocols as defined by the workplace
2. Routine clinical practice is evidence based	Complies with evidence-based policies and procedures for procedure methods that are consistent with professional standards
	Recognises that quality improvement is a continuous process incorporating new evidence-based developments and standards of practice

Element 2: Contributes to quality assurance procedures	
Indicators	Cues
1. Contributes to risk assessment, audit and quality assurance	Understands and participates in local quality assurance programmes
	Works towards continual improvement i.e. conducts audit cycles
	Assesses the risk of activities in the clinical setting and manages the risk in an appropriate manner
2. Evaluates results and takes appropriate action when indicated	Performs equipment quality assurance activities as required to ensure equipment is operating effectively and safely
	Ensures all values achieved in quality assurance tests fall within the tolerance levels
	Repeats tests when necessary and takes corrective action or escalates to appropriate person
	Reports problems relating to equipment in the appropriate manner
	Reports the potential risks to the relevant parties
Element 3: Contributes to enhanced service quality	
Indicators	Cues
1. Understands the patient's right to receive safe and high-quality diagnostic or therapeutic services	Ensures a high-quality service is delivered to all patients by maintaining professional standards
2. Understands the means by which the quality of diagnostic or therapeutic services can be maintained and improved	Applies quality assurance and quality improvement methods, including audit
3. Accepts responsibility for assuring the quality of professional services provided	Identifies mechanisms through which the quality of professional services can be maintained and improved
	Complies with policies and procedures which are conducive to quality practice

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4. Seeks continuous improvement in service quality	Promotes an environment of continuous improvement by participating in and promoting quality improvement or quality assurance activities and reviewing workplace practices
5. Shows initiative in implementing and evaluating changes to practice	Proposes, applies and audits evidence-based changes within the evolving medical imaging or therapeutic environment
	Proactive involvement in development of policies and procedures.

Standard 5.2 Contribute to maintaining a safe working environment

Element 1: Accepts responsibility for maintaining a safe working environment.	
Indicators	**Cues**
1. Understands the need to maintain a safe working environment	Maintains the work environment in compliance with workplace safety legislation
	Maintains competencies according to workplace safety legislation
2. Knowledge of risk management protocols	Complies with risk management protocols Maintains knowledge of safety procedures
3. Maintains workplace safety	Complies with workplace safety policies and procedures
	Promotes a 'no blame' safety culture within the work environment
	Identifies potential workplace hazards and risks and implements effective mitigation strategies
	Acts to ensure that the physical and radiation safety of all personnel in the workplace is maintained
	Understands and applies radiation protection principles
	Escalates safety issues and reports appropriately as per local, state or national standards

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3. Operates equipment in a safe manner	Understands and applies knowledge of operating imaging equipment safely.
	Ensures equipment is operating within the parameters set by the manufacturer.
	Follows Workplace Health and Safety guidelines when operating equipment or assisting patients
	Identifies malfunctioning equipment and takes immediate remedial action

Standard 5.3 Acts to preserve the safety of individuals and groups at all times

This standard relates to the practical applications of the policies and procedures including but not limited to radiation protection, infection control, and incident reporting and risk management. MRPs have a responsibility for the safety of patients, staff, visitors, and themselves.

Element 1: Demonstrates knowledge of radiation safety to a level that supports safe practice in medical radiation.	
Indicators	**Cues**
1. Demonstrates a thorough knowledge of and adherence to radiation safety and protection policies and legislation that support safe practice	Adheres to the local radiation management plan (RMP)
	Ensures that all procedures are performed in compliance with the ALARA principle
	Follows the correct patient, correct site, correct procedure guidelines
	Complies with the relevant sections of the ARPANSA Code of Practice (RPS 14) and Safety Guides (RPS 14.1 & 14.3)
	Understand and applies knowledge of occupational radiation dose standards
	Uses and maintains personal protective equipment, including personal radiation monitoring
	Operates equipment in a manner consistent with national guidelines and state and territory radiation safety legislation

2. Identifies and reports unsafe equipment	Follows appropriate procedures in response to faulty or unsafe equipment
3.Ensures practice is aligned to radiation safety principles.	Uses shielding devices when appropriate
	Checks pregnancy status of all female patients of child-bearing age as per workplace protocol and documents patient response.
	Ensures patient's carers and/or the health care team are provided with Personal Protective Equipment or stand at a safe distance when present in the procedure room when radiation is used
Element 2: Demonstrates knowledge of working safely in a clinical environment.	
Indicators	**Cues**
1.Demonstrates knowledge and applies infection prevention principles	Applies infection prevention principles for the procedure including: - 5 moments of hand hygiene - Use of personal protective equipment - Cleaning equipment after each patient encounter with appropriate cleaning products
	Identification of and implementation of safety protocols for patients with suspected / confirmed communicable infectious diseases
Demonstrates knowledge of how to manage occupational violence and bullying in the workplace	Understands how to identify and report occupational violence and bullying for self and colleagues
Element 3: Identifies risk to safe practice and takes appropriate action	
Indicators	**Cues**
1. Understands potential risk factors in the clinical environments	Manages workload to ensure safe practice
	Maintains personal mental and physical health as appropriate to allow safe and competent practice

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2. Ensures a safe working environment for patients and others	Complies with relevant local policy for all aspects of patient care
Element 3: Analyses and documents issues related to reportable incidents, with recommendations for future corrective actions	
Indicators	**Cues**
1. Manages clinical and staff incidents and near misses	Promptly identifies and complies with local and/or jurisdictional incident management policy and reports incidents and near misses promoting a 'no blame' culture
	Engages in reviewing incidents and near misses to improve safety and practice
	Incidents are documented clearly and completely in a timely fashion using the appropriate channels
	Understands the need to be accountable for incident reporting

Standard 5.4 Plan resources for service delivery

This standard relates to the ability of MRPs to prioritise workload and workflow to make the best use of available resources. It encompasses the requirement to plan for predicted workload and ensure resources will be sufficient to meet workload demands.

Element 1: Confirms resources are sufficient for the workload	
Indicators	**Cues**
1. Understands the staffing levels required for safe service delivery	Considers workload and staffing levels in order to maintain standards of patient care
	Reports workload issues and escalates unsafe workloads
2. Ensures accessory equipment and stock is adequate for the workload	Ensures adequate accessory equipment and stock are available for workload
Element 2: Manages resources appropriately	
Indicators	**Cues**
1. Makes best use of available resources	Effectively manages resources according to the workload
2. Ensure waste products are disposed of safely	Follows protocols for the disposal of sharps and biohazardous waste

Element 3: Demonstrates knowledge of health care organisational management.	
Indicators	Cues
1. Demonstrates a knowledge of the organisational and management structure	Understands the organisation and management of the local workplace how it fits within the health service as a whole
	Identifies clinical risks and understand the reporting process for clinical incidents and the escalation process for patient safety and quality issues and risks to be managed.

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Domain 6: Lifelong Learning

Standard 6.1	Demonstrates commitment to continuing professional development
Standard 6.2	Participates in the training and development of students, graduate practitioners and colleagues
Standard 6.3	Participates in guiding the learning of others
Standard 6.4	Participates in research relating to practice

Standard 6.1 Demonstrates commitment to continuing professional development

This standard covers acceptance, understanding of, and commitment to the concept of continuing professional development which is essential to maintain, develop and enhance professional skills and knowledge. It is essential that MRPs keep up to date with current developments, trends and technologies, in all areas relevant to their professional activity.

Element 1: Commits to lifelong learning	
Indicators	Cues
1. Understands the importance of lifelong learning and commits to active participation	Understands the role that lifelong learning plays in professional development in the delivery of contemporary quality procedures
	Demonstrates evidence of lifelong learning relevant to their profession
Element 2: Uses ASMIRT Professional Practice Standards to assess own performance	
Indicators	Cues
1. Critically reflects on own professional knowledge	Identifies and acknowledges limitations of knowledge and does not practice outside scope of practice
	Determines own educational needs and undertakes additional education and/or training to address the gaps in knowledge identified. This could be demonstrated in the form of a learning plan
Element 3: Participates regularly in continuing professional development	
Indicators	Cues
	Compares learning and development accomplishments with previously

1. Engages in and reflects upon professional development	determined goals to ensure they are being achieved or to revise the CPD Plan
	Takes advantage of professional development opportunities
	Maintains a record of involvement in continuing professional development
2. Demonstrates an understanding of developments and trends in medical radiation practice	Attends regular education opportunities to ensure knowledge of advancements in medical radiation practice is current
Element 4: Participates in training programs related to the introduction of new technologies and procedures	
Indicators	**Cues**
1. Undertakes applications training following the installation of new equipment and/or software	Reads the appropriate manuals regarding operation and safe use of equipment before use
	Participates in training delivered by Applications Specialist or other suitably trained personnel on new equipment prior to using
	Ensures knowledge and understanding of limitations and capabilities of new equipment
	Participates in the implementation of any required change to practice
Element 5: Commits to the development of the profession	
Indicators	**Cues**
1. Participates in activities of the Australian Society of Medical Imaging and Radiation Therapy	Engages in activities of the professional organisation
	Encourages colleagues to participate in activities organised by the professional body
2. Undertakes activities to advance the profession	Supports activities associated with research, investigation and publication for the advancement of medical radiation science as a profession
	Is an ambassador for the medical radiation science profession

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Standard 6.2 Participates in the education of students

This standard relates to the responsibility MRPs have in assisting students and graduates to acquire the knowledge, skills and attributes for professional practice. It also deals with the role that feedback provides during the learning process.

Element 1: Participates in education of students	
Indicators	**Cues**
1. Engages in provision of appropriate clinical practice for students relevant to their stage of education and experience	Supports students to gain the maximum experience from procedures they undertake
	Role models appropriate professional behaviour
	Facilitates experiential learning under supervision by providing learning opportunities which are relevant and diverse
	Communicates information, ideas and techniques, and encourages the use of problem-solving skills and development of reflective practice
	Helps set specific achievable goals and outcomes for clinical practice and provides constructive feedback
Element 2: Evaluates the progress of students towards expected outcomes	
Indicators	**Cues**
1. Provide formal and informal feedback arising from clinical experience provided	Evaluates performance against established criteria for the learning objectives of the clinical placement
	Provides specific, objective and accurate feedback in a timely and supportive manner
	Participates in professional development to improve clinical supervision and constructive feedback skills

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Standard 6.3 Participates in supporting the learning of others

This standard relates to the role MRPs have as health professionals to disseminate their knowledge, experience and expertise to their colleagues, health professionals from other disciplines and promotion of the profession to the wider community.

Element 1: Contributes to learning experiences and professional development of others	
Indicators	**Cues**
1. Participates in communication that will educate staff, patients, and wider community	Engages in educating staff and the public about medical imaging or radiation therapy practice
	Ensures that the information presented is evidence based, accurate and current
2. Participates in formal and informal education opportunities involving colleagues and peers	Undertakes formal or informal education sessions with the multi-disciplinary team
	Presents or contributes to multi-disciplinary team education sessions

Standard 6.4 Supports research relating to practice

This standard looks at the development of a sound scientific research base to inform service planning and decision-making. MRPs should support ways to increase research capacity within their practice and incorporate initiatives for continual improvement to clinical outcomes.

Element 1: Demonstrates an understanding of the significance of research in contemporary practice	
Indicators	**Cues**
1. Recognises the value of research in the development of the practice of medial radiation science	Understands the relevance of research for improving health outcomes
2. Demonstrates an understanding of the relevant research methods to the practice of medical radiation science	Is aware of a range of different research methods and how they can be applied
3. Recognises the impact of research on contemporary practice	Disseminates findings of research activities within the profession
	Evaluates new evidence and participates in change management processes where new practice is indicated
Element 2: Demonstrates knowledge of research as it relates to the professions	
Indicators	**Cues**

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1. Demonstrates knowledge of ethical requirements for research	Conducts research in accordance with all institutional ethics committees, and complies with the ethical requirements outlined by the relevant State, National and International organisations
	Distinguishes between ethical and non-ethical research and audit
2. Demonstrates knowledge of principles of evidence-based practice	Uses current and relevant evidence to aid in decision making
	Reviews and critically evaluates literature with respect to research methodology, data collection and analysis
Element 3: Support developments in the science and practice of the professions	
Indicators	**Cues**
1. Support developments in the practice of medical radiation science	Contribute to the development of the medical radiation science knowledge base by participating in research projects
	Identifies areas within practice which may benefit from scientific investigation

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