



ABN 26 924 779 836

**Australian Institute of Radiography**

**Professional Practice  
Standards  
For the Accredited  
Practitioner**

**Revised 2013**

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## Ownership

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## Glossary of Terms

### Approved Course/Program

An approved course/program is one which has been reviewed and accepted by a recognized accreditation agency and has met certain requirements as defined by the profession within the Education Policy of the AIR.

### Accredited Practitioner

An accredited practitioner will have achieved a level of competence to enable them to accept the responsibilities of practising independently and be capable of performing the expected role of a practitioner in a sole practitioner situation. An accredited practitioner is one who has attained a Validated Statement of Accreditation from the AIR, or in the case of an overseas qualified practitioner, has been assessed by the Overseas Qualifications Panel of the AIR as being equivalent to an AIR accredited practitioner.

### As Low As Reasonably Achievable (ALARA)

ALARA is an acronym for As Low As Reasonably Achievable, economic and social factors being taken into account. This is a radiation safety principle for minimising radiation doses and releases of radioactive materials by employing all reasonable methods. ALARA is not only a sound safety principle, but is a regulatory requirement for all radiation safety programs.

### Australian Institute of Radiography (AIR)

The Australian Institute of Radiography (AIR) is the professional association representing the Medical Radiation Science profession (Radiation Therapists, Radiographers and Sonographers) in Australia.

### Carer

People who provide unpaid or paid care by looking after an ill, frail or disabled family member, friend or partner.

### Competency Based Standards (CBS)

CBS describe the performance benchmarks for Radiation Therapists and Radiographers. This was the term used for previous documents of the AIR (1998, 2005) and has been replaced in this document by Professional Practice Standards (PPS)

### DEST

Department of Education, Science and Training

### Graduate Practitioner

A graduate practitioner is a graduate from an approved Medical Radiation Science course/program whom, upon completion of such course/program, would receive the Statement of Provisional Accreditation of the AIR. The graduate practitioner is required

to successfully complete the National Professional Development Program (NPDP) of the AIR to gain recognition as an accredited practitioner.

### **Medical Radiation Practitioner (MRP)**

It is a professional umbrella term covering the following professions in medical radiation sciences

### **Medical Radiation Science (MRS)**

Medical Radiation Science is the collective term that includes the practice of Nuclear Medicine Technology, Radiation Therapy, Radiography/Medical Imaging and Sonography. For the purposes of this document the term MRS shall only include Radiation Therapy and Radiography/Medical Imaging.

### **National Office of Overseas Skills Recognition (AEI-NOOSR)**

This body forms part of the Australian Government International Education Network (AEI) and its function is the development of Australian policy on issues of overseas skills recognition.

### **NPDP**

The NPDP provides a mechanism for Australian medical imaging and radiation therapy graduates (of 3 or less year University courses) to attain recognition as an Accredited Practitioner by the AIR. The NPDP facilitates the consolidation of the skills, knowledge and professional attributes described in the AIR Competency Based Standards for the Accredited Practitioner by providing a national structured framework for graduates to undergo professional peer assessment of their ability in a supervised clinical environment.

### **Patient/Client**

Client is used in the context of this document and may be referred to in some settings as a patient, who is an individual person or recipient of professional services provided by a radiographer or a radiation therapist.

### **Professional Practice Standards (PPS)**

PPS describe the performance benchmarks for the Accredited Practitioner in Radiation Therapy and Radiography eligible for a Validated Statement of Accreditation.

### **Professional Accreditation and Education Board (PAEB)**

The Professional Accreditation and Education Board is a board of the AIR that deals with matters related to undergraduate, graduate entry and postgraduate education, professional practice and development of the Medical Radiation Science profession.

## **Radiation Oncology**

In the clinical context, Radiation Oncology is the treatment of malignant and benign disease using ionising radiation. This may be done to cure disease; to palliate the symptoms and signs of disease; as a primary treatment modality; in combination with other treatment modalities; to improve the quality of life; or for research.

## **Radiation Therapist (RT)**

Radiation Therapists are professionals primarily concerned with the design and implementation of radiation treatment and issues of care and wellbeing of people diagnosed with cancer and other conditions. The name Radiation Therapist used within this document refers to those professionals that may have been referred to in the past both within Australia and internationally, as Therapeutic Radiographer, Radiation Therapy Technologist, Medical Radiation Science Professional, and Therapy Radiographer.

## **Radiation Therapy**

Radiation therapy is the treatment of malignant and benign disease using ionising radiations.

## **Radiographer (R)**

Radiographers are professionals who perform a range of medical imaging procedures, and who interpret the resultant images for the diagnosis and management of medical conditions.

The name Radiographer used within this document refers to those professionals that may be called within Australia and internationally, Radiographer, Diagnostic Radiographer, Medical Imaging Technologist, Medical Radiation Science Professional and Medical Imaging Scientist.

## **Radiography/Medical Imaging**

In the clinical context, Radiography/Medical Imaging is the professional practice of providing a range of procedures using ionising or non-ionising radiation. This may be done to produce an image to confirm or exclude a clinical diagnosis; to assist and monitor treatment processes; for screening programs or for research.

## **Radiation Management Plan (RMP)**

Radiation management plan will help ensure that the radiation doses to users, other persons involved in the practice, members of the public and the environment are below the prescribed limits and are as low as reasonably achievable.

## **Scope of Practice (SOP)**

Scope of Practice defines the major areas of responsibility and application of knowledge, judgment, functions and skills of the practitioner in their professional role.

# Professional Practice Standards

## Introduction

Professional Practice Standards (PPS) describe the performance benchmarks for the Accredited Practitioner in Radiation Therapy and Radiography eligible for a Validated Statement of Accreditation.

The PPS provides a framework for professional and community expectations. The Standards aim to integrate the skills, knowledge and understanding that underpin the professions of Radiation Therapy and Radiography with the unique attributes and attitudes of these disciplines.

The Standards have several purposes:

- To provide standards of practice for the accredited practitioner,
- To provide standards necessary to assess overseas applicants seeking a Validated Statement of Accreditation,
- To assist tertiary institutions to develop approved undergraduate and graduate entry programs,
- To provide a statement on the current status of our profession in the community,
- To provide government bodies such as AEI-NOOSR and DEST with information regarding best practice in our professions,
- To provide a resource for the development of industrial awards,
- To provide a framework for higher levels of practice (and career structure),
- To support registration and licensing processes,
- To provide a framework for resumption of practice,
- 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.

## History of the Standards

In 2005 the Australian Institute of Radiography released an updated version of the Competency Based Standards 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 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,
- Academic Institutions and,
- 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 an intensive literature review of the CBS and report back to the AIR. 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.

## What is Competence?

The term competence can be used in many ways when considering professional practice. A clear definition is needed to guide this review. It is possible, as in Eraut's (1998) review of definitions and meanings of competence, to distinguish between treating competence as a socially situated concept –“ the ability to perform tasks and roles to the standard people expect” -- and those who define it as individually situated, a set of personal capabilities or characteristics (Neufeld and Norman, 1985). Eraut argues in favour of a socially situated definition, because the notion of competence is central to the relationship between professionals and their clients; and recommends using the word capability to describe the individually situated concept of “what a person can think or do”. Whether or not a person's capability makes them competent in a particular job depends on them being able to meet the requirements of that job. Hence competence in a job is defined as “the ability to perform the tasks and roles required to the expected standard” (Eraut, 1998). Further, Fraser and Greenhalgh 2001 define competence as what individuals know or are able to do in terms of knowledge, skills and attributes.

The advantage of using Eraut’s definition is that it can be applied at any stage throughout a professional career. The standard of competence expected will vary according to experience and responsibility. This definition also considers the requirement to keep abreast with current developments and changes in practice. It also leaves open the question of who will decide what is to count as competence when different people have different expectations. Training and experience results in a steadily increasing range of competence, accompanied by gradually decreasing levels of supervision; and the process of expanding one's range of competence continues after completion of training. Throughout this period the principle holds good of not

undertaking work for which one is not competent without appropriate supervision, whatever one's status.

An accredited practitioner will have achieved a level of competence to enable them to accept the responsibilities of practising independently. An accredited practitioner should autonomously perform wide ranging professional roles within their scope of practice.

It is recognised there are further levels of judgment and skill known as advanced and extended practice. These are outside the scope of this document.

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## Scope of Practice for Radiation Therapist

### Accredited Practitioner Level

Radiation therapy is the treatment of malignant and benign disease using ionising radiations. This may be done:

- To cure disease,
- As a primary treatment modality,
- In combination with other treatment modalities,
- To palliate the symptoms and signs of disease,
- To improve the quality of life and,
- For research.

Radiation Therapists are professionals primarily concerned with the design and implementation of radiation treatment and issues of care and wellbeing of people diagnosed with cancer and other conditions undergoing radiation therapy.

The scope of practice of the Radiation Therapist (Accredited Practitioner level) shall include:

- Patient assessment including psychosocial issues,
- Patient positioning and immobilisation,
- Patient education and advocacy,
- Manufacture/construction of ancillary equipment,
- Simulation, including tumour localisation, treatment planning and dosimetry,
- Treatment by superficial to megavoltage external beams and verification,
- Imaging for planning and treatment verification purposes,
- Mentoring, clinical reasoning and research.
- Quality assurance and quality improvement

Whilst the Accredited Practitioner has the theoretical knowledge, they do not specifically possess the level of competence to practice independently in specialist areas.

## Scope of Practice for Radiographer

### Accredited Practitioner Level

Radiography is the professional practice of providing a range of diagnostic imaging procedures and therapeutic procedures using ionising and non-ionising radiation. This may be done:

- To create an image to confirm or exclude a clinical diagnosis,
- To assist, monitor and manage treatment processes,
- For screening programs and,
- For research

Radiographers are professionals who provide and assess a range of medical imaging procedures for subsequent diagnosis and management of medical conditions. Radiographers are responsible for optimising diagnostic quality whilst maintaining radiation safety.

The scope of practice of the Radiographer (Accredited Practitioner level) shall include:

- Patient and clinical assessment,
- Patient education and advocacy
- Application of the science of medical imaging to include:
  - general radiography,
  - mobile radiography
  - fluoroscopy,
  - operating theatre imaging,
  - emergency imaging and,
  - computed tomography.
- Image processing and data recording,
- Quality management and diagnostic efficacy,
- Image assessment,
- Mentoring, clinical reasoning and research.
- Quality assurance and quality improvement

Whilst the Accredited Practitioner has the theoretical knowledge, they do not specifically possess the level of competence to practice independently in specialist areas.

## Structure of Professional Practice Standards 2013

The 2013 review of the standards has modified and expanded on the existing format.

The updated competency standard format now comprises five levels:

- Domain
- Standard
- Element
- Indicator
- Cues

### Domain

The 2013 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

The standards in each domain reflect the level of proficiency and professionalism expected of the graduate practitioner upon attainment of the AIR Validated Statement of Accreditation. Each competency standard describes the particular professional activity to be assessed or demonstrated. The standards are the explicit requirements of the Radiation Therapist or Radiographer as they move into the clinical environment.

## Elements

The standards are further broken down into elements. These describe the key components or responsibilities within the standard. They aim to integrate knowledge, skills, attitudes and other important attributes of professional performance in the work place. The standards and elements are expressed in active form. There will be overlap, and often a number of elements will be performed simultaneously.

## 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. These may cover aspects such as context for assessment or required evidence of competency.

## Review

Standards will be modified and updated regularly and as necessary to incorporate and reflect advances and developments in the MRS profession. This is part of routine quality assurance to ensure that this professional document meets the requirements of the time.

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## Domain 1: Professional and Ethical Practice

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Standard 1.1	Practises within the Legal Framework
Standard 1.2	Practises to the standards laid down by the profession
Standard 1.3	Fulfils the duty of care in clinical practice
Standard 1.4	Provides patient centred care
Standard 1.5	Acts to preserve the safety of individuals and groups at all times
Standard 1.6	Guided in action by their own and others' Scope of Practice
Standard 1.7	Acts to ensure that patient welfare and rights are appropriately respected
Standard 1.8	Responds appropriately in culturally sensitive situations

This domain deals with the standards that relate to the legal, ethical and professional responsibilities of radiographers and radiation therapists. Radiographers and radiation therapists have a duty of care to both their patients and the other health professionals with whom they interact. Professional behaviour is expected at all times. Radiographers and radiation therapists have an obligation to maintain professional competence, and to only undertake procedures within their own scope of practice.

Practice is regulated by statute law administered by the Medical Radiation Practice Board of Australia and common law. The Australian Institute of Radiography (AIR) provides Guidelines for Professional Conduct for Radiographers, Radiation Therapists and Sonographers and a Code of Ethics. Professional practice consistent with the standards outlined in this domain ensures that medical imaging procedures or radiation therapy treatments performed are of consistent and reliable quality.

## Standard 1.1 Practises within the Legal Framework

This standard deals with the legislative requirements that impact on professional radiography or radiotherapy practice. It delineates the requirement to practise using methods that are compatible with the codes, guidelines and standards that have been set by the Medical Radiation Practice Board of Australia and the Australian Institute of Radiography.

Element 1: Practises in accordance with statute law and the Australian Institute of Radiography's Code of Ethics, Guidelines for Professional Conduct and Professional Practice Standards	
Indicators	Cues
1. Understands and applies the obligations of statute law as they relate to the delivery of their professional services	<ul style="list-style-type: none"> <li>• Has an awareness of the statutory role of the Medical Radiation Practice Board of Australia.</li> <li>• Works within the guidelines set out by the national law covering the regulation of Medical Radiation Practitioners.</li> <li>• Complies with the Medical Radiation Practice Board of Australia's Code of Conduct.</li> <li>• Meets their obligations with regard to mandatory notification in cases of "notifiable conduct" of a health practitioner.</li> <li>• Maintains National Registration, complies with, and can explain all requirements of MRPBA.</li> </ul>
2. Executes the legislative obligations that are relevant to the provision of their professional services	<ul style="list-style-type: none"> <li>• Demonstrates safe practice within the framework of current legislation that governs the use of radiation for medical purposes.</li> <li>• Only undertakes procedures and treatments which have been requested by a health professional properly authorised to request procedures involving the use of radiation.</li> <li>• Ensures that operational policies and procedures comply with the legislative requirements governing the use of radiation.</li> </ul>

3. Practises in accordance with the Code of Ethics for professional practice as outlined by the Australian Institute of Radiography (AIR)	<ul style="list-style-type: none"> <li>• Knowledge of and compliance with the AIR Code of Ethics.</li> <li>• Demonstrates ethical responsibilities during practice.</li> </ul>
4. Practises in accordance with the AIR Code of Professional Conduct	<ul style="list-style-type: none"> <li>• Knowledge of and compliance with the AIR Code of Professional Conduct.</li> <li>• Practises within legislative requirements and understands the implications of non-compliance within professional, legal and ethical constraints.</li> </ul>
5. Practises in accordance with the AIR Professional Practice Standards	<ul style="list-style-type: none"> <li>• Meets the standards expected of a practitioner at the level of own knowledge, skills and experience.</li> </ul>
6. Practises in accordance with Occupational Health and Safety Legislation	<ul style="list-style-type: none"> <li>• Understands and executes the legal requirements of maintaining a safe workplace under Occupational Health and Safety legislation.</li> <li>• Has knowledge of and adheres to occupational health and safety procedures in the workplace.</li> <li>• Actively takes responsibility for providing a safe workplace.</li> </ul>
7. Practices in accordance with the Code of Practice	<ul style="list-style-type: none"> <li>• Understands and executes the requirements of the Code (RPS 14) in relation to the responsibilities of particular workgroups.</li> </ul>

## Standard 1.2 Practises to the standards of the profession

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

Element 1: Maintains a professional image	
Indicators	Cues
1. Maintains professional integrity	<ul style="list-style-type: none"> <li>• Refrains from engaging in any activity which may bring the profession into disrepute.</li> <li>• Recognises and appreciates the imbalance of power during procedures and takes steps to avoid any misinterpretation of professional behaviour.</li> <li>• Defends against any abuse of the professional relationship formed with patients.</li> <li>• Practises without discrimination.</li> <li>• Works without seeking personal profit or gain from interactions with patients.</li> </ul>
2. Understands personal accountability for work and professional conduct	<ul style="list-style-type: none"> <li>• Understands the legal responsibility to be accountable for professional practice, including acts of negligence and acts appropriately.</li> <li>• Accepts responsibility for their decisions during procedures and treatment.</li> </ul>
3. Works within the guidelines of the profession	<ul style="list-style-type: none"> <li>• Recognises the scope of practice of their own and other health professions, and works appropriately within those frameworks.</li> <li>• Is able to explain their role within healthcare.</li> <li>• Does not undertake duties which are outside their scope of practice.</li> </ul>

## Standard 1.3 Fulfils the duty of care in clinical practice

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

<b>Element 1: Acts to ensure the rights of individuals are not compromised</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates practice that recognises, respects and upholds the rights of individuals	<ul style="list-style-type: none"> <li>• Practises in a manner that protects the patient’s rights.</li> <li>• Demonstrates respect and discusses with patients their individual rights in relation to their health care.</li> <li>• Acts as an advocate for individual rights.</li> </ul>
2. Supports patients’ rights to be informed about their procedure or treatment and make independent decisions	<ul style="list-style-type: none"> <li>• Is proactive in providing information related to the procedures or treatment being undertaken.</li> <li>• Provides patients with the information required for them to make an informed decision regarding their treatment.</li> <li>• Provides the patient with information regarding the procedure being undertaken.</li> <li>• Supports and accepts patient decisions and choices related to their own treatment plan.</li> <li>• Provides appropriate support and advice following the procedure for any after care requirements.</li> </ul>
<b>Element 2: Demonstrates duty of care in patient management</b>	
<b>Indicators</b>	<b>Cues</b>
1. Understands their duty of care to patients.	<ul style="list-style-type: none"> <li>• Describes and understands the meaning of professional duty of care as it relates to their interaction with patients.</li> <li>• Ensures that patients receive a high quality procedure.</li> <li>• Recognises and understands the legal implications of professional misconduct or negligence.</li> <li>• Holds an appropriate level of professional indemnity insurance as required by National Law.</li> </ul>
2. Recognises professional responsibilities and understands accountability	<ul style="list-style-type: none"> <li>• Recognises and evaluates factors which may contraindicate requested procedure.</li> <li>• Questions or clarifies requests for</li> </ul>

	<p>procedures which appear inappropriate.</p> <ul style="list-style-type: none"> <li>• Only accepts requests which include adequate clinical information to justify the procedure.</li> <li>• Consults with members of the multidisciplinary team when required.</li> <li>• Evaluates and assesses each request for procedure or treatment thoroughly with respect to the proposed technique.</li> <li>• Ensures that the patient’s clinical status is considered when designing a treatment or procedure for the patient.</li> </ul>
<p>3. Ensures treatment is provided within an appropriate time frame</p>	<ul style="list-style-type: none"> <li>• Ensures priority is based on medical urgency.</li> <li>• Can justify assigned priority in terms of the medical urgency and act accordingly.</li> <li>• Recognises factors which might impact on assigned priority, and demonstrates an ability to be flexible when required.</li> <li>• Optimise resources to best meet care needs of patients.</li> <li>• Alerts the appropriate personnel responsible for the patient’s treatment of medically significant findings or of a change in patient condition.</li> </ul>

## Standard 1.4 Provides patient centred care

This standard deals with patient centred care, which takes into account the patient's wants, needs and preferences regarding the requested procedural pathways. Patients should be provided with the information and support necessary to become actively involved in decisions concerning their procedure.

<b>Element 1: Provides patient focused methods of practice</b>	
<b>Indicators</b>	<b>Cues</b>
1. Recognises, monitors and responds to the needs of patients	<ul style="list-style-type: none"> <li>Identifies and accommodates patient's needs where possible during treatment or procedures.</li> <li>Takes responsibility for the care of patients during the treatment or procedure.</li> <li>Monitors and responds appropriately to the patient's condition throughout the treatment or procedure.</li> </ul>
2. Modifies and adapts the treatment or procedure to take account of patients' needs	<ul style="list-style-type: none"> <li>Modifies the treatment or procedure according to patient status.</li> <li>Identifies situations which may affect patient outcome and adapts the treatment or procedure accordingly.</li> <li>Uses initiative for the benefit of the patient.</li> </ul>
<b>Element 2: Treats patients with respect and empathy</b>	
<b>Indicators</b>	<b>Cues</b>
1. Uses a respectful and empathetic approach when dealing with patients	<ul style="list-style-type: none"> <li>Introduces and identifies themselves to patients in a respectful manner before commencing the treatment or procedure.</li> <li>Explains procedures in patient friendly language.</li> <li>Communication with patients is conducted with sensitivity and respect for their privacy</li> <li>Treats patients with respect, tolerance and empathy.</li> <li>Maintains patient's dignity and maximises comfort throughout the procedure.</li> <li>Practises without discrimination.</li> </ul>
2. Encourages the cooperation of patients in their treatment or procedure	<ul style="list-style-type: none"> <li>Encourages the patient to be an active participant in the treatment or procedure.</li> <li>Provides a safe environment for the patient to engage with the practitioner.</li> </ul>

	<ul style="list-style-type: none"> <li>Engages the patient’s cooperation, and allows time for the patient to comply with requests.</li> </ul>
3. Encourages feedback regarding the procedure	<ul style="list-style-type: none"> <li>Actively seeks patient feedback on care and uses this to improve practice.</li> <li>Responds appropriately to patient complaints or comments about care received.</li> <li>Complies with relevant complaints policies and procedures of the workplace</li> </ul>

## Standard 1.5 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, incident reporting and risk management. Radiographers and radiation therapists have a responsibility for the safety of patients, staff, visitors and themselves.

<b>Element 1: Demonstrates a broad and relevant knowledge of radiation safety to a level that supports safe practice in Radiography or Radiation Therapy</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates a thorough knowledge and adherence to radiation safety and protection policies and legislation that supports safe practice	<ul style="list-style-type: none"> <li>• Adheres to the local radiation management plan (RMP)</li> <li>• Uses equipment only for the purposes intended, applying appropriate techniques safely.</li> <li>• Ensures that all procedures comply with the ALARA principle</li> <li>• Only accepts requests for procedures from authorised personnel.</li> <li>• Uses appropriate radiation safety procedures to prevent unnecessary exposure to staff, public and other patients</li> <li>• Determines and manages pregnancy status when applicable before commencing the procedure.</li> <li>• Recognises potential radiation hazards and takes appropriate action.</li> <li>• Complies with the relevant sections of the ARPANSA Code of Practice (RPS 14) and Safety Guides (RPS 14.1 &amp; 14.3)</li> </ul>
2. Withdraws unsafe equipment from clinical use	<ul style="list-style-type: none"> <li>• Recognises faulty or unsafe equipment and</li> <li>• Follows appropriate procedures in response to faulty or unsafe equipment.</li> </ul>
<b>Element 2: Identifies risk to safe practice and takes appropriate action</b>	
<b>Indicators</b>	<b>Cues</b>
1. Understands potential risk factors in the clinical environments	<ul style="list-style-type: none"> <li>• Follows the correct patient, correct site, correct procedure guidelines.</li> <li>• Manages workload to ensure safe practice.</li> <li>• Ensures personal mental and physical health is appropriate to allow safe and competent practice.</li> </ul>

2. Questions procedures which are potentially inappropriate	<ul style="list-style-type: none"> <li>• Discusses with the referring practitioner when the apparent risk to the patient is greater than the benefit obtained by the procedure.</li> <li>• Ensures that the documentation is clear, specific and details the appropriate procedure, treatment or intervention for the individual patient.</li> </ul>
3. Ensures a safe working environment for patients and others	<ul style="list-style-type: none"> <li>• Ensures that the working conditions adequately provide for the safety of patients, staff and the public.</li> <li>• Ensures the working environment is maintained in a safe and hygienic condition taking into account all occupational health and safety requirements.</li> <li>• Complies with relevant local policy for patient transport.</li> <li>• Uses appropriate immobilisation devices when indicated.</li> <li>• Reports and manages appropriately any situation that may put patients, staff or public at risk.</li> </ul>

### Element 3: Act to minimise risk of infections

Indicators	Cues
1. Recognises the potential for spread of infection and minimise hazard through the application of Standard Precautions	<ul style="list-style-type: none"> <li>• Understands and can describe the mode of transmission of microorganisms.</li> <li>• Is able to evidence current knowledge of infection control procedures.</li> <li>• Practises infection control including hand hygiene and equipment cleanliness procedures.</li> <li>• Complies with Standard Precautions guidelines.</li> <li>• Adheres to the protocol regarding the use of personal protective equipment.</li> </ul>

### Element 4: Reporting of incidents

Indicators	Cues
1. Manages appropriately incidents involving staff, patients and the public, ensuring correct and timely documentation and reporting through appropriate channels occurs	<ul style="list-style-type: none"> <li>• Complies with the system in place for the reporting of clinical incidents.</li> <li>• Completes appropriate documentation in the event of an incident.</li> <li>• Promptly identifies and reports faults or hazards.</li> </ul>

## Standard 1.6 Guided in action by their own and others' Scope of Practice

This standard deals with Scope of Practice (SOP), which ensures that a radiographer or radiation therapist has completed the relevant training, and has the skills, knowledge and experience to practice safely and effectively for the procedures they are undertaking. The Scope of Practice will generally alter throughout an individuals' career as they gain knowledge and experience. The Scope of Practice may become more focussed with increasing experience as the radiographer or radiation therapist moves into specialty areas.

<b>Element 1: Recognise and operate within own SOP</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrate an ability to understand, recognise and work within the framework of his/her own personal and professional skills	<ul style="list-style-type: none"> <li>Only undertakes procedures independently or with others for which the relevant education and training have been completed.</li> </ul>
<b>Element 2: Consults with others when expertise is required beyond own SOP</b>	
<b>Indicators</b>	<b>Cues</b>
1. Seeks assistance and consults colleagues when appropriate	<ul style="list-style-type: none"> <li>Assesses the situation and recognises when additional assistance is required</li> <li>Seeks the help of more experienced colleagues when required.</li> </ul>
<b>Element 3: Recognises the boundaries of SOP for student and graduate practitioners</b>	
<b>Indicators</b>	<b>Cues</b>
1. Recognises the boundaries of SOP for students, graduate practitioners and others as appropriate	<ul style="list-style-type: none"> <li>Identifies tasks which can be appropriately delegated to less experienced practitioners</li> <li>Recognises own accountability and responsibility when delegating tasks to other less experienced practitioners.</li> </ul>
2. Instruct and supervises students, graduate practitioners and others as appropriate	<ul style="list-style-type: none"> <li>Willingly shares knowledge and expertise with students and other staff members.</li> <li>Assists in the professional development of staff and students.</li> <li>Ensures appropriate supervision is provided for students and staff members.</li> <li>Accepts the responsibility that is associated with a supervisory role.</li> </ul>
<b>Element 4: Consults with other professionals when issues are beyond own SOP</b>	
<b>Indicators</b>	<b>Cues</b>
1. Develops and sustains professional	<ul style="list-style-type: none"> <li>Works in partnership with all members of</li> </ul>

<p>working relationships with other professionals</p>	<p>the multidisciplinary professional team.</p> <ul style="list-style-type: none"> <li>• Contributes to professional relationships and works as part of a team.</li> </ul>
<p>2. Recognises the appropriate time to seek assistance, consult colleagues or refer issues that are beyond own SOP</p>	<ul style="list-style-type: none"> <li>• Recognises the scope of practice of their own and other health professions, and works appropriately within those frameworks.</li> <li>• Understands and describes the chain of clinical responsibility.</li> <li>• Seeks advice or refers on to another member of the professional team when appropriate.</li> </ul>

## Standard 1.7 Acts to ensure that patient welfare and rights are appropriately respected

This standard enforces the guidelines set out in the AIR Codes of Ethics and Professional Conduct for radiographers and radiation therapists, which emphasises that the prime concern of practitioners shall be ensuring that the welfare, safety and rights of patients are upheld at all times.

<b>Element 1: Practises in a manner that upholds the patient's right to privacy.</b>	
<b>Indicators</b>	<b>Cues</b>
1. Knowledge of the legislation relating to privacy	<ul style="list-style-type: none"> <li>• Has knowledge of and complies with the Privacy Act as it relates to Professionals, and can direct others to the relevant documents.</li> <li>• Complies with the legislations surrounding the collection, use, disclosure and storage of personal information.</li> <li>• Adheres to the legislative guidelines limiting access to patient's personal records.</li> </ul>
<b>Element 2: Complies with ethical practice standards</b>	
<b>Indicators</b>	<b>Cues</b>
1. Implements an ethical approach to patient treatment	<ul style="list-style-type: none"> <li>• Behaves in a manner that upholds the good standing and reputation of the profession.</li> <li>• Promotes and adheres to a culture of ethical behaviour.</li> <li>• Does not engage in any behaviour which causes unnecessary physical or psychological distress to the patient or their families.</li> </ul>
2. Engages effectively in ethical decision making	<ul style="list-style-type: none"> <li>• Demonstrates an ability to make informed, sensitive, and ethically sound professional judgements and to evaluate the outcomes of clinical practice.</li> <li>• Makes decisions concerning the patient based on a legitimate ethical basis.</li> </ul>
3. Identifies, assesses and acts upon physical and psychological needs with an understanding of their impact in clinical decision making	<ul style="list-style-type: none"> <li>• Acknowledges that procedures may need to be flexible</li> <li>• Identifies and modifies approach to meet the needs of those with physical or psychological issues.</li> <li>• Tailors procedures to the individual patient.</li> <li>•</li> </ul>

<b>Element 3: Ensures confidentiality of information</b>	
<b>Indicators</b>	<b>Cues</b>
1. Understands the importance of patient confidentiality	<ul style="list-style-type: none"> <li>• Treats all information relating to patients as confidential.</li> <li>• Respects the confidentiality of information relating to patients and their families.</li> </ul>
2. Upholds the local Privacy and Confidentiality policies at all times	<ul style="list-style-type: none"> <li>• Confidentiality and privacy is maintained at all times.</li> <li>• Information is only disclosed to other members of the professional team in cases of clinical necessity for the therapeutic benefit of the patient.</li> <li>• Complies with privacy legislation when sharing patient information for professional and treatment purposes.</li> <li>• Complies with statutory reporting requirements</li> </ul>
3. Takes care to ensure that patient confidentiality is not breached accidentally	<ul style="list-style-type: none"> <li>• Is aware of situations where patient confidentiality can be breached and takes action to avoid such disclosures</li> <li>• Disposes of identified patient information in an appropriate manner</li> <li>• Comply with legislative requirements and local policy when using patient data</li> </ul>
<b>Element 4: Ensures that procedures are undertaken with the appropriate consent</b>	
<b>Indicators</b>	<b>Cues</b>
1. Understands the importance of patient consent	<ul style="list-style-type: none"> <li>• Clearly explains procedures to the patient before commencing.</li> <li>• Only initiates a procedure when the appropriate consent has been obtained.</li> <li>• Organises an appropriate interpreter for the consent to occur if English is not their preferred language</li> </ul>
2. Ensures informed consent has been undertaken	<ul style="list-style-type: none"> <li>• Checks to ensure the referring medical practitioner has explained the nature of the examination or treatment, and the reasons for requesting it.</li> <li>• Ensures the patient has been given adequate information about the procedure.</li> </ul>
3. Understands the patient's rights relating to consent	<ul style="list-style-type: none"> <li>• Understands, accepts and acts upon the knowledge that the patient can withdraw consent at any stage during the</li> </ul>

	<p>examination.</p> <ul style="list-style-type: none"><li>• Knows the steps to take in the case of a patient withdrawing consent.</li></ul>
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## Standard 1.8 Responds in a culturally sensitive manner

This standard relates to cultural awareness. The radiographer or radiation therapist should practice without discrimination and demonstrate respect and sensitivity to patients from different backgrounds and beliefs.

Element 1: Acts in ways that demonstrate respect for the values, customs, spiritual beliefs and practices of individuals	
Indicators	Cues
1. Identifies, assesses and accommodates cultural needs and is aware of how this may impact on the procedure	<ul style="list-style-type: none"> <li>• Ensures practice is sensitive and supportive with regards to cultural issues.</li> <li>• Shows awareness and respect for cultural identity.</li> <li>• Adapts approach to meet the needs of culturally diverse groups.</li> <li>• Identifies situations where cultural needs may influence treatment options and acts accordingly.</li> </ul>
2. Respects the values, customs, spiritual beliefs, cultural and linguistic diversity of patients	<ul style="list-style-type: none"> <li>• Recognises situations where the values, beliefs and cultural backgrounds of patients may influence care and treatment.</li> <li>• Recognises situations where there may be potential for misinterpretation or conflict due to cultural differences.</li> <li>• Modifies methods when appropriate to accommodate the values, beliefs and cultural backgrounds of patients.</li> <li>• Ensures that own values and beliefs are not imposed on others.</li> <li>• Understands the obligation to practice without discrimination for race, religion, cultural or spiritual beliefs.</li> </ul>

## 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 multidisciplinary team
Standard 2.3	Establishes and maintains effective interpersonal relationships with patients and others
Standard 2.4	Demonstrates well-established conflict resolution skills
Standard 2.5	Operates effectively as an autonomous and responsible practitioner

This domain includes standards that relate both to effective communication and the establishment and maintenance of collaborative working relationships with all members of the professional team. Conflict resolution skills are a major part of maintaining effective, collaborative working relationships. This domain also includes the standards relating to the autonomy of radiographers and radiation therapists, their professional responsibilities, and accountability for their own work practices.

### Standard 2.1 Demonstrates effective communication skills

This standard relates to the ability of radiographers and radiation therapists to use effective communication skills in all aspects of their professional duties. It encompasses verbal, non-verbal and written communication. Radiographers and radiation therapists should be aware of the barriers to the communication process, and understand that cultural diversity may require some modifications to the methods of communication employed.

Element 1: Uses sound communication methods	
Indicators	Cues
1. Maintains effective communication skills	<ul style="list-style-type: none"> <li>• Implements, maintains and concludes appropriate communication with patients and carers, colleagues, professionals and members of the public.</li> <li>• Exchanges and shares information with members of the multidisciplinary team.</li> <li>• Selects the appropriate communication technique to suit the relevant situation.</li> <li>• Uses knowledge of effective communication skills that includes verbal, non-verbal and written communication.</li> </ul>
2. Respects others' opinions	<ul style="list-style-type: none"> <li>• Listens to, and shows respect for other</li> </ul>

	<p>opinions and views.</p> <ul style="list-style-type: none"> <li>• Acknowledges differing opinions.</li> </ul>
3. Recognises and overcomes communication barriers.	<ul style="list-style-type: none"> <li>• Avoids the use of jargon and medical terminology when talking to patients.</li> <li>• Recognises and manages the types of barriers to communication which may exist within the clinical environment</li> <li>• Selects and uses the relevant strategies when communication barriers are evident.</li> </ul>
4. Modifies communication methods to account for cultural diversity	<ul style="list-style-type: none"> <li>• Responds appropriately to cultural, ethnic and religious variables which may affect communication.</li> <li>• Communicates in a culturally sensitive and inclusive manner.</li> <li>• Employs the use of an interpreter when the clinical situation requires.</li> <li>• Understands that cultural values and beliefs can affect the communication process.</li> <li>• Understands how non-verbal communication can be interpreted differently according to culture, ethnicity, and religious belief.</li> <li>• Selects the appropriate communication style to interact with each specific patient.</li> </ul>
<b>Element 2: Adjusts communication technique to suit the situation</b>	
<b>Indicators</b>	<b>Cues</b>
1. Adjusts communication effectively in diverse contexts	<ul style="list-style-type: none"> <li>• Adopts and adjusts communication style appropriately when the situation warrants.</li> <li>• Demonstrates awareness of communication needs for patients with impaired decision making capacity, and ensures involvement of the patient's carer as necessary.</li> </ul>
2. Utilises a communication style which is suitable, applicable and acceptable	<ul style="list-style-type: none"> <li>• Adjusts language to suit the context.</li> <li>• Is aware of the type of language which may cause offence and takes care to avoid it.</li> <li>• Articulates thoughts and ideas using clear concise language.</li> <li>• Clarifies information when necessary to aid with understanding.</li> <li>• Uses various forms of communication to ensure information provided is accurate</li> </ul>

	and complete.
3. Confirms that the intended message has been correctly interpreted	<ul style="list-style-type: none"><li>• Confirms that the information is understood by asking open ended follow up questions.</li><li>• Responds to feedback and clarifies when necessary.</li><li>• Watches for non-verbal cues.</li><li>• Alters vocabulary to aid with understanding when necessary</li></ul>

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

This standard deals with the radiographer and radiation therapist's role as a member of the multidisciplinary team. Radiographers and radiation therapists should endeavour to create strong working relationships with other members of the professional 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 a functioning member of the team.

Element 1: Ability to work collaboratively within the organisation	
Indicators	Cues
1. Provides information and advice regarding imaging or radiation therapy procedures to <b>colleagues and members of the healthcare team</b>	<ul style="list-style-type: none"> <li>• Discusses alternative pathways with the professional team to enable optimum outcome.</li> <li>• Educates other <b>colleagues and members of the healthcare team</b> about procedures and radiation safety.</li> <li>• Engenders confidence in their role within the professional team.</li> <li>• Acts as a role model within the professional team</li> </ul>
2. Establishes the communication pathways necessary to achieve desired work outcomes	<ul style="list-style-type: none"> <li>• Establishes and actively maintains positive working relationships with colleagues.</li> </ul>
3. Ability to identify and use effective networks that allow for communication between colleagues and peers	<ul style="list-style-type: none"> <li>• Develops networks with health professionals and support staff.</li> <li>• Forms collaborative affiliations with other health professionals.</li> <li>• Encourages mutual sharing of knowledge and experience with other members of the professional team.</li> </ul>
4. Ability to recognise and support the role and function of other professionals and support staff.	<ul style="list-style-type: none"> <li>• Respects and understands the roles of other professionals and support staff in the professional environment.</li> <li>• Works in partnership with other professionals.</li> <li>• Recognises situations where the expertise of other health professionals is required to undertake an examination.</li> </ul>
5. Understands and recognises	<ul style="list-style-type: none"> <li>• Recognises their role within the</li> </ul>

organisational structure and their responsibility within the health care facility.	<p>professional network.</p> <ul style="list-style-type: none"> <li>• Suggests other treatment options and pathways to referring doctors when appropriate.</li> </ul>
<b>Element 2: Advise colleagues and members of the healthcare team about individual patients needs and know when to make appropriate referrals</b>	
<b>Indicators</b>	<b>Cues</b>
1. Communicates patient requirements to members of the multidisciplinary team and applies appropriate referral procedures when necessary	<ul style="list-style-type: none"> <li>• Is proactive in responding to clinical issues that benefit from a team approach.</li> <li>• Contact is made with <b>colleagues and members of the healthcare team</b> when relevant.</li> <li>• Discusses unreasonable requests from the team that would compromise practice or patient care.</li> <li>• Explains and justifies reasoning behind suggestions regarding imaging or therapeutic procedures.</li> <li>• Notifies requesting doctor when imaging shows an immediate clinical response is indicated.</li> <li>• Provides a description of images within own Scope of Practice.</li> </ul>
<b>Element 3: Demonstrates respect for colleagues and other members of the multidisciplinary team</b>	
<b>Indicators</b>	<b>Cues</b>
1. Establishes productive working relationships and team communication through recognition of the role and function of other members of the multidisciplinary team	<ul style="list-style-type: none"> <li>• Establishes and maintains effective relationships with other health professionals.</li> <li>• Employs a positive and collaborative manner with other members of the multidisciplinary team.</li> <li>• Respects the role of other members of the team and their responsibility to the patient.</li> </ul>
<b>Element 4: Participate with other members of the professional team in decision making</b>	
<b>Indicators</b>	<b>Cues</b>
1. Participates in team approach to patient preparation, management, imaging selection and interpretation	<ul style="list-style-type: none"> <li>• Works to uphold teamwork with relation to patient care.</li> <li>• Supports the role of collaboration in the provision of timely and effective patient care.</li> </ul>

	<ul style="list-style-type: none"> <li>• Understands their role as part of a multidisciplinary team.</li> <li>• Participates in, and contributes effectively with colleagues and members of the professional team</li> <li>• Discusses treatment with other members of the professional team when required ensuring that patient privacy and confidentiality is maintained.</li> </ul>
<p>2. Effectively communicates with professional team members</p>	<ul style="list-style-type: none"> <li>• Demonstrates effective skills in communicating information and professional opinion to other members of the professional team.</li> <li>• Uses networks that allow for effective communication with patients, colleagues and others.</li> </ul>
<p>3. Collaborates with other professionals within the team for the provision of continuing care</p>	<ul style="list-style-type: none"> <li>• Cooperates in a collaborative manner with colleagues and other health professionals for the benefit of the patient.</li> <li>• Contributes to the treatment path of the patient as part of the professional team.</li> <li>• Works in partnership with other health professionals to achieve optimum clinical outcomes.</li> <li>• Shares knowledge with other health professionals to encourage collaborative practice.</li> </ul>

## Standard 2.3 Establishes and maintains effective interpersonal relationships with patients and carers

This standard deals with the radiographer or radiation therapist's ability to establish a rapport with patients to enable a successful outcome to the examination or treatment program. It also deals with the timely dissemination of information to patients and their carer.

<b>Element 1: Shows empathy towards patients, their carers and colleagues</b>	
<b>Indicators</b>	<b>Cues</b>
1. Communicates support and empathy to the patient.	<ul style="list-style-type: none"> <li>• Establishes a rapport with the patients.</li> <li>• Provides reassurance to patients and their carers as appropriate</li> <li>• Provides information appropriate to the patient's needs.</li> <li>• Listens carefully and responds accordingly.</li> </ul>
2. Demonstrates an empathetic approach to patients	<ul style="list-style-type: none"> <li>• Understands the anxiety and uncertainty that may come with illness and injury.</li> <li>• Recognises that this may affect normal behaviour.</li> <li>• Anticipates and responds to the needs of patients to ensure the delivery of quality care.</li> <li>• Gains the confidence and cooperation of patients undergoing a procedure by the use of empathetic communication.</li> </ul>
<b>Element 2: Applies strategies to promote individual or group self esteem</b>	
<b>Indicators</b>	<b>Cues</b>
1. Informs and supports patients and others in a timely, appropriate and sensitive manner	<ul style="list-style-type: none"> <li>• Is responsive in providing information to patients within their SOP.</li> <li>• Is respectful of the role of carers and provides information as appropriate, remaining mindful of patient confidentiality at all times.</li> </ul>

## Standard 2.4 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. Manages conflict within the workplace	<ul style="list-style-type: none"><li>• Develops and maintains constructive professional relationships</li><li>• Deals with conflict promptly</li><li>• Applies the principles of focussing on the problem rather than the person</li><li>• Identifies and analyses the reasons behind the conflict.</li><li>• Works to resolve the conflict and assesses the success of the approach used to resolve the conflict</li><li>• Cooperates and compromises through negotiation to achieve an acceptable outcome for all parties.</li></ul>

## Standard 2.5 Operates effectively as an autonomous and responsible practitioner

This standard addresses the requirement for radiographers and radiation therapists 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	
Indicators	Cues
1. Provides a professional opinion of medically significant findings to the medical personnel responsible for the patient's management	<ul style="list-style-type: none"> <li>• Provides an opinion that lies within their knowledge and expertise.</li> <li>• Takes precautions to ensure any opinion provided is accurate and appropriate.</li> </ul>
2. Recognises and demonstrates professional responsibilities and accountabilities	<ul style="list-style-type: none"> <li>• Takes responsibility for ensuring professional conduct and behaviour is maintained at all times.</li> <li>• Demonstrates accountability and takes responsibility for own actions.</li> <li>• Strives to minimise the radiation dose to the patient.</li> </ul>
Element 2: Demonstrates a conscientious approach to work practices	
Indicators	Cues
1. Self-management for timely and efficient practice is evident	<ul style="list-style-type: none"> <li>• Manages time appropriately.</li> <li>• Works efficiently making the best use of available time for a given task.</li> <li>• Controls and manages interruptions to tasks.</li> <li>• Organises time and prioritises workload appropriately.</li> <li>• Manages conflicting demands on their time.</li> <li>• Adjusts priorities if the situation warrants.</li> <li>• Completes all work to a high standard and in a timely manner.</li> </ul>
2. Projects a professional image	<ul style="list-style-type: none"> <li>• Respects the obligation to be punctual for working hours.</li> <li>• Knows their specific conditions of employment, and adheres to them.</li> <li>• Observes all departmental policies and procedures.</li> <li>• Maintains an appropriate standard of</li> </ul>

	<p>appearance and demeanour.</p> <ul style="list-style-type: none"> <li>• Clothing and personal presentation is professional and suitable for the workplace.</li> <li>• Maintains composure in the work environment in stressful conditions.</li> <li>• Manages personal circumstances whilst in the work environment.</li> </ul>
<b>Element 3: Make independent professional decisions within their Scope of Practice (SOP)</b>	
<b>Indicators</b>	<b>Cues</b>
1. Ability to communicate and liaise with patient, carers and other professional staff in professional decision making	<ul style="list-style-type: none"> <li>• Communicates effectively with patients, departmental staff, wards, clinicians and other health professionals.</li> <li>• Refers patient queries regarding diagnosis and treatment outside of the scope of practice to the relevant professional.</li> </ul>
2. Examinations or treatment are conducted within the limitations of SOP relating to decision making in equipment and technique used	<ul style="list-style-type: none"> <li>• Works within their SOP.</li> <li>• Procedures within the practitioner's SOP are undertaken competently.</li> </ul>
<b>Element 4: Recognises and responds to own level of professional ability</b>	
<b>Indicators</b>	<b>Cues</b>
1. Recognises and works within the limitations of clinical and professional skills	<ul style="list-style-type: none"> <li>• Acknowledges own strengths and weaknesses.</li> <li>• Accepts constructive feedback and uses this to improve professional skills.</li> <li>• Can define their area or responsibility</li> </ul>
<b>Element 5: Maintain effective communication throughout a procedure</b>	
<b>Indicators</b>	<b>Cues</b>
1. Elicits patient cooperation and establish rapport	<ul style="list-style-type: none"> <li>• Remains sensitive to the physical and emotional needs of the patient.</li> <li>• Uses various communication methods to gain cooperation by the patient.</li> </ul>
2. Provides effective communication relating to pre-procedure requirements, during the procedure and aftercare information	<ul style="list-style-type: none"> <li>• Provides a complete explanation of the procedure prior to commencing an examination, so that an informed decision can be made.</li> <li>• Ensures any pre-procedural requirements have been followed</li> <li>• Understands the precautions associated with the administration of contrast agents,</li> </ul>

	<p>and checks for any known allergies or contraindications prior to the administration</p> <ul style="list-style-type: none"> <li>• Addresses patient’s concerns before, during and after the examination.</li> <li>• Provides aftercare instructions when appropriate.</li> </ul>
<b>Element 6: Ensure documentation is accurate</b>	
<b>Indicators</b>	<b>Cues</b>
1. Ensures that consent protocols have been followed	<ul style="list-style-type: none"> <li>• Follows the consent protocols of the healthcare organisation</li> <li>• Verifies appropriate consent has been obtained before commencing any procedures.</li> <li>• Verifies that the signed consent form including the correct site is listed and present for contrast, simulation and treatment procedures</li> </ul>
2. Appropriate identification of all medical records and medical images	<ul style="list-style-type: none"> <li>• Establishes the correct identity of patients prior to commencing examination.</li> <li>• Ensures that all imaging and documentation is identified with the correct details.</li> <li>• Ensures that if an imaging identification error occurs, it is corrected as a matter of priority, and all appropriate remedial actions are taken.</li> </ul>
3. Accurately completes all documents within appropriate timeframes	<ul style="list-style-type: none"> <li>• Efficiently completes all administrative responsibilities within the recommended timeframes of the healthcare organisation.</li> <li>• Documents relevant patient data in an accurate and timely fashion.</li> <li>• Documents any deviation from the standard protocol, and the reasons behind this.</li> </ul>

## Domain 3a: Knowledge and Understanding (Radiography)

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, radiographic principles and concepts that are required in the practice of radiography. Radiographers are required to understand the principles of x-ray production and the benefits and risks associated with medical imaging procedures. A thorough 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. This domain also covers the psychosocial aspects of medical imaging procedures, as well as the duty of care radiographers have to protect the patients and other staff members.

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

This standard deals with the knowledge base required by radiographers in order to practice their profession skilfully, 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 interpretation of the range of medical images	<ul style="list-style-type: none"> <li>• Knowledge and application of the physics of ionising and non-ionising image production.</li> <li>• Knowledge and use of the types of imaging equipment.</li> <li>• Knowledge of positioning for all imaging procedures, including alternate modified techniques.</li> <li>• Adheres to principles of image critique and quality assurance</li> <li>• Distinguishes between normal and abnormal appearances medical images.</li> </ul>

<p>2. Demonstrates knowledge of the risk benefit analysis involved in the practice of radiography</p>	<ul style="list-style-type: none"> <li>• Selection of appropriate imaging studies is based on consideration of all relevant risks.</li> <li>• Justifies each imaging procedure, seeking further information from the referring clinician as required.</li> <li>• Provides accurate, pertinent information to patients about radiation safety.</li> <li>• Remains mindful of the duty to limit the radiation exposure to patients.</li> </ul>
<p>3. Demonstrates knowledge of the use of medical terminology as it relates to radiography</p>	<ul style="list-style-type: none"> <li>• Understands and applies terminology relating to anatomical position, planes and orientations of the body.</li> <li>• Understands and applies terminology relating to the manner in which images are acquired</li> <li>• Interprets a radiological request form, understanding all terminology used, and how it relates to the radiological series performed.</li> </ul>

**Element 2: Demonstrates a broad and relevant knowledge of physical sciences as it relates to Medical imaging**

Indicators	Cues
<p>1. Demonstrates knowledge of the physical principles of medical imaging</p>	<ul style="list-style-type: none"> <li>• Understands the effects of the interactions of x-rays with matter and how this contributes to image formation</li> <li>• Understands the physics of x-ray generation and its uses in the various imaging modalities.</li> <li>• Understands the principles of image formation and associated imaging modalities including MRI, CT and PET</li> </ul>
<p>2. Demonstrates knowledge of principles of radiation dosimetry</p>	<ul style="list-style-type: none"> <li>• Understands and interprets the importance of radiation dose.</li> <li>• Adapts and modifies exposure factors based on the variables present in any given situation.</li> <li>• Ensures that the appropriate exposure for the area being examined is used.</li> </ul>
<p>3. Demonstrates knowledge of equipment and instrumentation and their principles, application and limitations</p>	<ul style="list-style-type: none"> <li>• Identifies all components of the imaging system.</li> <li>• Understands the function of each item of equipment with regards to image production.</li> </ul>

	<ul style="list-style-type: none"> <li>• Sets up and uses the medical imaging equipment safely and appropriately for each requested examination.</li> </ul>
<b>Element 3: Demonstrate a broad and relevant knowledge of biological sciences as it relates to Medical imaging</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates knowledge of the anatomy and physiology of the human body,	<ul style="list-style-type: none"> <li>• Understands the anatomy and physiology of the human body with relation to medical imaging.</li> </ul>
2. Demonstrates knowledge of the pathology, and healing	<ul style="list-style-type: none"> <li>• Understands the signs and symptoms of disease as they relate to medical imaging.</li> <li>• Understands the radiological changes evident with various conditions.</li> <li>• Understands the mechanisms of injury and their relevance to imaging procedures.</li> </ul>
3. Demonstrates a knowledge of scientific principles of radiobiology	<ul style="list-style-type: none"> <li>• Articulates the biological and cumulative effects of radiation dose including the deterministic and stochastic effects.</li> <li>• Understands and can define the dangers of foetal irradiation.</li> </ul>
4. Demonstrates knowledge of the pharmacology of contrast agents and associated drugs used in the radiography setting	<ul style="list-style-type: none"> <li>• Knowledge of the characteristics, indications, and potential side effects of contrast agents.</li> <li>• Recognises adverse reactions promptly and seek appropriate treatment.</li> <li>• Understands that iodinated contrast can exert a nephrotoxic effect, and that this is intensified in cases of dehydration.</li> <li>• Understands the need to screen patients for underlying renal disease</li> </ul>
5. Demonstrates knowledge of the use of contrast agents and drugs, including intravenous administration and protocols for adverse reactions	<ul style="list-style-type: none"> <li>• Knows the contraindications to the administration of contrast agent.</li> <li>• Determines known allergies prior to the administration of contrast.</li> <li>• Determines the patient's renal function prior to a contrast examination.</li> <li>• Recognises the appropriate type and volume of contrast agent to be administered for a particular examination.</li> <li>• Is able to describe the various types of contrast materials used in medical imaging</li> <li>• Recognises adverse reactions and promptly follows protocols</li> </ul>

<b>Element 4: Demonstrates a broad and relevant knowledge of humanities and behavioural sciences as it relates to medical imaging</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates knowledge and understanding of sociological and psychological aspects of care for people undergoing procedures, their families and carers and acts accordingly	<ul style="list-style-type: none"> <li>• Understands the stress associated with medical investigations.</li> <li>• Understands that patients presenting for radiological procedures will have anxieties and concerns relating to the results of the investigation.</li> <li>• Understands that patients will be anxious about the investigation.</li> <li>• Demonstrates knowledge of significant life stresses/stressors and coping strategies and how they may impact on the patient.</li> <li>• Demonstrates knowledge of significant life stresses/stressors and coping strategies and how they may impact on relatives, friends and carers of the patient</li> <li>• Is able to instigate appropriate interventional protocols to assist patients and their families</li> </ul>
2. Demonstrates knowledge of behavioural and communication sciences, and has an in-depth understanding of their relevance and application to the practice of medical imaging and care of the patient	<ul style="list-style-type: none"> <li>• Understands that patients will react to, and cope differently with radiological procedures.</li> <li>• Understands the patient's communication and behaviour may change in response to the illness or injury</li> </ul>
3. Recognises the roles of physical and psychological preparation for imaging procedures	<ul style="list-style-type: none"> <li>• Ensures the patient understands any preparation instructions given and the reason for them.</li> <li>• Provides an explanation of the procedure before commencing.</li> <li>• Maintains a professional countenance when performing procedures</li> <li>• Ensures the patient understands any specific instructions to assist with the procedures</li> </ul>
<b>Element 5: Demonstrates a relevant and current knowledge of Information Technology as it relates to medical imaging</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrate knowledge of information technology associated with radiography,	<ul style="list-style-type: none"> <li>• Knowledge and application of the appropriate Imaging Information Systems used in their workplace.</li> </ul>

2. Demonstrates knowledge of information technology to select, analyse, present, interpret, manipulate and communicate imaging information	<ul style="list-style-type: none"><li>• Has a working knowledge of radiology and related IT systems</li><li>• Understands the components and functional relationships of PACS</li><li>• Understand the functions and components of digital imaging and its manipulation</li></ul>
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## Standard 3a.2 Demonstrates a broad and relevant knowledge of the practice underpinning medical imaging

This standard deals with the clinical application of theoretical knowledge of medical imaging. It covers positioning, exposure selection, image interpretation, applications of medical imaging and the different imaging modalities, and the correct use of imaging equipment.

Element 1: Demonstrates a thorough knowledge of the principles of medical imaging and their clinical application	
Indicators	Cues
1. Demonstrates a thorough knowledge of patient and clinical assessment, positioning and immobilisation	<ul style="list-style-type: none"> <li>Assesses the patient to verify the clinical history is accurate and complete.</li> <li>Plans the procedure according to the individual patient, accounting for any modifications which may be required.</li> <li>Positions the area being examined taking into account anatomical landmarks, to ensure demonstration of the required anatomical structures.</li> <li>Uses accessory positioning devices when appropriate.</li> <li>Uses patient immobilization devices when necessary.</li> </ul>
2. Demonstrates a thorough knowledge of the principles, clinical application and performance of general radiography	<ul style="list-style-type: none"> <li>Performs procedures confidently and safely.</li> <li>Positions patient and equipment correctly so that quality images are produced.</li> <li>Collimates to the area of interest.</li> <li>Uses grids and filters when appropriate for the anatomy being demonstrated.</li> <li>Has a thorough knowledge of exposure factors</li> <li>Has a thorough knowledge of CR and DR image receptors, and the differences between the two.</li> <li>Knowledge of, and can perform, the complete range of radiographic procedures.</li> <li>Establishes appropriate projections required for the examination requested.</li> <li>Produces quality diagnostic images by adapting the examination to suit the</li> </ul>

	<p>circumstances.</p> <ul style="list-style-type: none"> <li>• Undertakes imaging in the general setting mindful of the need for radiation protection</li> </ul>
3. Demonstrates a thorough knowledge of the principles, clinical application and performance of mobile radiography	<ul style="list-style-type: none"> <li>• Performs procedures confidently and safely.</li> <li>• Positions patient and equipment correctly so that quality images are produced.</li> <li>• Collimates to the area of interest.</li> <li>• Uses grids and filters when appropriate for the anatomy being demonstrated.</li> <li>• Thorough knowledge of exposure factors</li> <li>• Knowledge of CR and DR image receptors, and the differences between the two.</li> <li>• Knowledge of, and can perform, the complete range of radiographic procedures.</li> <li>• Establishes appropriate projections required for the examination requested.</li> <li>• Produces quality diagnostic images by adapting the examination to suit the circumstances.</li> <li>• Undertakes imaging in the mobile setting mindful of the need for radiation protection</li> </ul>
4. Demonstrates a thorough knowledge of the principles, clinical application and performance of fluoroscopy	<ul style="list-style-type: none"> <li>• Knowledge and application of the complete range of fluoroscopic imaging procedures and the radiographer's role</li> <li>• Collimates to the area of interest.</li> <li>• Uses grids and filters when appropriate for the anatomy being demonstrated.</li> <li>• Thorough knowledge of exposure factors</li> <li>• Determines appropriate parameters for fluoroscopic screening.</li> <li>• Undertakes imaging in the fluoroscopic setting mindful of the need for radiation protection and infection control</li> <li>• Acts as part of the team in the fluoroscopic procedure</li> </ul>
5. Demonstrates a knowledge of the principles, clinical application and performance of operating theatre	<ul style="list-style-type: none"> <li>• Knowledge and application of the range of operating theatre procedures.</li> <li>• Collimates to the area of interest.</li> </ul>

imaging	<ul style="list-style-type: none"> <li>• Uses grids and filters when appropriate for the anatomy being demonstrated.</li> <li>• Thorough knowledge of exposure factors</li> <li>• Knowledge and application of the capabilities and use of a mobile image intensifier.</li> <li>• Determines and sets parameters on mobile image intensifiers.</li> <li>• Acts as part of the team in the operating theatre.</li> <li>• Undertakes imaging in the operating theatre setting mindful of the need for radiation protection and infection control</li> </ul>
6. Demonstrates a knowledge of the principles, clinical application and performance of emergency imaging	<ul style="list-style-type: none"> <li>• Understands the nature of trauma and emergency imaging.</li> <li>• Participates as part of the patient care team in the trauma setting.</li> <li>• Acquires quality diagnostic images within the emergency setting</li> <li>• Modifies imaging techniques to account for the patient's condition.</li> <li>• Prioritises procedures so that high acuity cases take precedence.</li> <li>• Undertakes imaging in the trauma setting mindful of the need for radiation protection</li> </ul>
7. Demonstrates a knowledge of the principles, clinical application and performance of routine Computed Tomography (CT)	<ul style="list-style-type: none"> <li>• Knowledge and application of the range of procedures performed with CT.</li> <li>• Perform routine procedures of the head, chest and abdomen and produces quality images for review in accordance with local protocols.</li> <li>• Undertakes imaging in the CT setting mindful of the need for radiation protection</li> </ul>
8. Demonstrates and applies knowledge of paediatric radiation safety principles and techniques in all areas of medical imaging	<ul style="list-style-type: none"> <li>• Knowledge and understanding of the implications and importance of dose control in a paediatric context.</li> <li>• Knowledge and understanding of immobilization for paediatric patients.</li> <li>• Knowledge and understanding of paediatric specific anatomy and pathology.</li> </ul>
9. Applies quality assurance	<ul style="list-style-type: none"> <li>• Verifies the patient demographics assigned</li> </ul>

<p>processes for all medical imaging procedures</p>	<p>to the images is accurate.</p> <ul style="list-style-type: none"> <li>• Verifies that radiographic markers are present on each image, and that they are accurate.</li> <li>• Determines the need for annotations.</li> <li>• Ensures that any annotations applied are not obscuring patient anatomy.</li> <li>• Ensures that the images are not compromised by artefact, and takes action if required.</li> <li>• Uses established criteria to assess that image quality is of an acceptable standard.</li> <li>• Determines whether the clinical question can be answered from the images obtained</li> </ul>
<p>10. Demonstrates an appropriate knowledge of image interpretation</p>	<ul style="list-style-type: none"> <li>• Normal anatomical structures can be correctly identified.</li> <li>• Abnormal findings can be recognised.</li> <li>• Recognises normal and abnormal appearances of diagnostic images which may indicate a pathological process.</li> <li>• Conveys information regarding normal and abnormal appearances to the treating physician.</li> </ul>
<p>11. Equipment is operated within its known limitations and in a manner appropriate for its function</p>	<ul style="list-style-type: none"> <li>• Selects the appropriate imaging equipment for the examination being performed.</li> <li>• Understands the applications and limitations of diagnostic imaging equipment.</li> <li>• Knowledge and application of how to use the imaging equipment safely and accurately.</li> <li>• Knows if the equipment is functioning correctly, and removes malfunctioning equipment from operation until the fault is rectified.</li> <li>• Limitations of the equipment are known and an examination is not attempted if a diagnostic outcome cannot be achieved.</li> </ul>
<p>12. Demonstrates a knowledge of radiography quality assurance procedures and methods to maximise diagnostic efficacy</p>	<ul style="list-style-type: none"> <li>• Understands and applies the quality assurance processes relevant to medical imaging, including those specific to any subspecialties worked in.</li> <li>• Complies with local quality assurance</li> </ul>

	protocols including repeat analyses
13. Demonstrates a knowledge of monitoring and care of the patient	<ul style="list-style-type: none"> <li>• Demonstrates a high standard of patient care when performing radiological procedures.</li> <li>• Acknowledges the limitations of a patient to cooperate with the examination depending on their clinical presentation.</li> <li>• Follows infection control protocols when caring for patients.</li> </ul>
14. Demonstrate a knowledge of the principles and of the clinical applications of specialised and emerging technologies	<ul style="list-style-type: none"> <li>• Understands the physics and applications of MRI.</li> <li>• Understands the physics and applications of ultrasound.</li> <li>• Understands the types of procedures which are undertaken in CT.</li> <li>• Knowledge and understanding of the principles and procedures used in paediatric imaging, and associated dose reduction strategies</li> <li>• Understands the types of procedures which are undertaken in interventional imaging.</li> <li>• Knowledge and understanding of angiography using conventional techniques, CT and MRI.</li> <li>• Knowledge and understanding of mammographic practice</li> <li>• Knowledge and understanding of the PACS environment.</li> </ul>
<b>Element 2: Demonstrates a thorough knowledge of imaging procedures and their application to patient welfare</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates a knowledge of safe work environment within the context of radiation safety and protection policies	<ul style="list-style-type: none"> <li>• Understands and applies radiation protection principles.</li> <li>• Operates equipment under the guidelines of the national radiation safety legislation.</li> <li>• Knowledge and application of occupational radiation dose standards.</li> <li>• Uses and maintains personal protective equipment.</li> <li>• Wears personal radiation monitoring device when working in an area where ionising radiation is used.</li> </ul>
2. Safe practice is maintained	<ul style="list-style-type: none"> <li>• Delivers appropriate radiation dose to the</li> </ul>

according to ALARA principle	<p>patient.</p> <ul style="list-style-type: none"> <li>• Checks to ensure that the examination is appropriate in the context of prior imaging</li> <li>• Identifies objects which could produce artefacts prior to the examination and where possible removes them.</li> <li>• Determines the most appropriate examination after reviewing clinical information and assessing the patient.</li> <li>• Uses shielding devices when appropriate</li> <li>• Checks pregnancy status of all female patients of child-bearing age as per local protocol.</li> <li>• If examination of a pregnant patient is clinically indicated, all available steps to minimise the radiation dose to the foetus are taken.</li> </ul>
3. Demonstrates a thorough knowledge of the benefits of different imaging techniques and modalities	<ul style="list-style-type: none"> <li>• Advises other healthcare professionals about the benefits and limitations of the various imaging modalities.</li> </ul>
4. Assumes responsibility for performance of appropriate medical imaging	<ul style="list-style-type: none"> <li>• Interprets requests and performs the appropriate examination for the patient's presenting condition.</li> <li>• Discusses techniques and alternatives with the requesting doctor when indicated.</li> <li>• Promotes diagnostic quality and safety with each examination.</li> </ul>
5. Evaluate the appropriateness of radiographic images produced and determine whether additional or supplementary imaging is required	<ul style="list-style-type: none"> <li>• Ensures the examination undertaken is appropriate to answer the clinical question posed.</li> <li>• Ensures the images produced are of diagnostic quality.</li> <li>• Determines the need for repeat views when imaging achieved is not to the required standard.</li> <li>• Determines whether the images produced answer the clinical question.</li> </ul>
<b>Element 3: Demonstrates an understanding of imaging procedures to contribute effectively to healthcare team decision making</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates a thorough knowledge/understanding of the	<ul style="list-style-type: none"> <li>• Understands the clinical implications associated with imaging procedures.</li> </ul>

healthcare team in the care of the patient	<ul style="list-style-type: none"> <li>• Understands the situations which are best addressed by a team approach.</li> <li>• Suggests an integrated team approach when appropriate.</li> </ul>
2. Demonstrates a thorough knowledge and understanding of referral information	<ul style="list-style-type: none"> <li>• Ensures that the request form is complete with all required information.</li> <li>• Understands the responsibility to recognise and take action when an incorrect examination is requested.</li> </ul>
3. Demonstrates a thorough knowledge and understanding of adapting working practices to meet the needs of individual patients and situations	<ul style="list-style-type: none"> <li>• Tailors the examination to the individual patient.</li> <li>• Reorganises workflow to account for emergencies and high priority situations.</li> </ul>
<b>Element 4: Demonstrates a thorough knowledge of information management and confidentiality</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates a thorough knowledge of organisational and management structure	<ul style="list-style-type: none"> <li>• Demonstrates an understanding of the levels of administration.</li> <li>• Recognises the organisation and management of the department and how it fits within the health service as a whole.</li> </ul>
2. Demonstrates a thorough knowledge of information technology associated with radiography	<ul style="list-style-type: none"> <li>• Has the appropriate level of computer skills required for their practice.</li> <li>• Understands the computer systems and programs relevant to the medical imaging department.</li> </ul>
3. Demonstrates a thorough knowledge/ understanding of confidentiality responsibilities related to information management	<ul style="list-style-type: none"> <li>• Ensures patient data is stored in a secure, readily retrievable and permanent form.</li> <li>• Follows all local healthcare confidentiality protocols</li> </ul>

## 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 and the benefits and risks associated with radiation therapy procedures. A thorough understanding of the key principles of radiation therapy practice is demonstrated. Practice will adhere to the ALARA principle. Knowledge of anatomy, physiology and pathology is essential for planning and treatment. This domain also includes the psychosocial aspects of the radiation therapy experience, as well as the duty of care radiation therapists have to protect the patients 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 in order to practice their profession skilfully, efficiently and safely. It covers knowledge of physics, anatomy, pathology, 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	<ul style="list-style-type: none"> <li>• Knowledge of the application of the physics of ionising and non ionising image production and treatment</li> <li>• Knowledge and use of the types of equipment used in radiation therapy for planning and treatment.</li> <li>• Knowledge of positioning and immobilization for radiation therapy treatment</li> <li>• Application of knowledge of the rationale for selection of treatment modality for</li> </ul>

	treating malignant and benign disease.
2. Demonstrates knowledge of the risk benefit analysis involved in the practice of radiation therapy	<ul style="list-style-type: none"> <li>• Selection of appropriate planning and treatment protocols for treatment is based on consideration of all relevant risks</li> <li>• Justifies each prescription and subsequent planning and treatment protocol, seeking further information from the referring radiation oncologist as required.</li> <li>• Provides accurate, pertinent information to patients about radiation safety issues.</li> <li>• Adheres to the ALARA principle</li> <li>• Selects an appropriate technique resulting in maximum dose to tumour volume while minimising healthy tissue exposure</li> </ul>
3. Demonstrates knowledge of the use of medical terminology as it relates to radiation therapy	<ul style="list-style-type: none"> <li>• Understands and applies terminology relating to anatomical position, planes and orientations of the body.</li> <li>• Understands and applies terminology relating to the manner in which images are acquired</li> <li>• Understands and interprets the radiation therapy prescription terminology, and relates it to the planning and treatment processes</li> </ul>
<b>Element 2: Demonstrates a broad and relevant knowledge of physical sciences as it relates to Radiation Therapy</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates knowledge of the physical principles of radiation therapy	<ul style="list-style-type: none"> <li>• Understands the effects of the interactions of x-rays with matter and how this contributes to the patient treatment.</li> <li>• Understands the physics of x-ray generation and its uses in the various imaging and treatment modalities.</li> <li>• Understands the principles of image formation in simulation and associated imaging modalities including MRI, CT and PET</li> </ul>
2. Demonstrates knowledge of principles of radiation dose, imaging technique and exposure factor selection	<ul style="list-style-type: none"> <li>• Understands and applies the principles of radiation therapy planning</li> <li>• Applies the correct protocols when using on board imaging to manage patient and target movement</li> </ul>

	<ul style="list-style-type: none"> <li>• Adapts and modifies exposure factors in simulation and treatment unit based on the variables present in any given situation.</li> <li>• Selects from the appropriate imaging modalities to ensure accurate imaging for treatment purposes.</li> </ul>
3. Demonstrates knowledge of equipment and instrumentation and their principles, application and limitations	<ul style="list-style-type: none"> <li>• Understands the function of equipment with regards to image production and delivery.</li> <li>• Understands the function of the equipment used for treatment</li> <li>• Uses all equipment safely and appropriately</li> </ul>

**Element 3: Demonstrates a broad and relevant knowledge of biological sciences as it relates to Radiation Therapy**

Indicators	Cues
1. Demonstrates knowledge of anatomy and physiology of the human body, with particular emphasis on regional and cross sectional anatomy, histology, haematology and the lymphatic and immune systems	<ul style="list-style-type: none"> <li>• Understands the anatomy and physiology of the human body with relation to medical imaging scans, specifically for contouring purposes, healthy tissue delineation and resultant side effects of structures</li> </ul>
2. Demonstrates knowledge of the pathophysiology and behaviour of solid and systemic malignancies and non malignancies, epidemiology, aetiology and the management of these	<ul style="list-style-type: none"> <li>• Understands the signs and symptoms and spread of cancer.</li> <li>• Understands the epidemiology and aetiology associated with various malignant and nonmalignant conditions.</li> <li>• Understands the mechanisms of cancer in the various anatomical regions, and the effects which might be seen.</li> <li>• Understands and can describe the various classification systems when applied to tumour classification</li> <li>• Can describe the various methods in which cancer can spread to secondary sites, and the more common spread patterns for specific anatomical regions.</li> </ul>
3. Demonstrates knowledge of the scientific principles of radiobiology	<ul style="list-style-type: none"> <li>• Articulates the biological and cumulative effects of radiation dose including the deterministic and stochastic effects</li> <li>• Understands and can define the consequences of foetal irradiation and acts to minimise dose</li> </ul>

<p>4. Demonstrates knowledge of pharmacology of contrast agents, cytotoxic drugs, and drugs used in the relief of symptoms encountered frequently within the oncology setting</p>	<ul style="list-style-type: none"> <li>• Is able to describe the various types of contrast materials used in the radiation therapy planning process.</li> <li>• Has knowledge of the characteristics, indications, and potential side effects of contrast agents.</li> <li>• Recognises the common types of chemotherapy drugs used in cancer patients, and the types of cancers for which they are used.</li> <li>• Recognises the drugs commonly used for the relief of symptoms and the type of cancers for which they are used</li> <li>• Recognises adverse reactions promptly and seeks appropriate treatment</li> </ul>
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**Element 4: Demonstrate a broad and relevant knowledge of humanities and behavioural sciences as it relates to Radiation Therapy**

Indicators	Cues
<p>2. Demonstrates knowledge and understanding of sociological and psychological aspects of care for people undergoing procedures, their families and carers and acts accordingly</p>	<ul style="list-style-type: none"> <li>• Understands the stress associated with medical investigations.</li> <li>• Understands that patients will have anxieties and concerns relating to the their condition and their treatment</li> <li>• Demonstrates knowledge of life stresses and coping strategies and how they may impact on the patient.</li> <li>• Acknowledges that relatives, friends and carers of the patient may also be affected</li> </ul>
<p>3. Demonstrates knowledge of behavioural and communication sciences, and has an understanding of their relevance and application to the care of those undergoing Radiation Therapy</p>	<ul style="list-style-type: none"> <li>• Understands that illness can produce emotional reactions such as anger, sadness, frustration, and fear.</li> <li>• Understands that patients may react to, and cope differently with the treatment process depending on where they are within the grief cycle.</li> <li>• Understands the patient’s response to the diagnosis including a possible disruption in their ability to function normally and participate in their planning and treatment process</li> </ul>
<p>4. Recognises the roles of physical and psychological preparation</p>	<ul style="list-style-type: none"> <li>• Ensures the patient understands any preparation instructions given and the reason for them.</li> </ul>

	<ul style="list-style-type: none"> <li>• Provides an explanation of the procedure before commencing.</li> <li>• Maintains a professional countenance when performing procedures</li> <li>• Ensures the patient understands any specific instructions to assist with the procedures</li> </ul>
5. Demonstrates knowledge and understanding of the behaviour of people undergoing procedures and treatments within the oncology setting and acts accordingly	<ul style="list-style-type: none"> <li>• Understands that the behaviour of patients will be altered depending on their anxieties, fears and the nature of the procedure.</li> <li>• Demonstrates a knowledge of psychosocial impact of oncology procedures and the subsequent impact on the patient and their families.</li> <li>• Demonstrates empathy and understanding for the patient, and completes the procedure in a calm and composed manner.</li> <li>• Demonstrates knowledge and understanding of end of life care</li> </ul>
<b>Element 5: Demonstrates a relevant and current knowledge of Information Technology as it relates to Radiation Therapy</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates knowledge of information technology associated with radiation therapy	<ul style="list-style-type: none"> <li>• Knowledge and application of the data information systems in their workplace</li> </ul>
2. Demonstrates knowledge of information technology to select, analyse, present, interpret and communicate information	<ul style="list-style-type: none"> <li>• Understands the components and functional relationships of the systems used to capture data in planning and treatment</li> <li>• Transfers information from the planning system to the information and treatment systems</li> <li>• Has a working knowledge of image verification systems.</li> </ul>
3. Demonstrates knowledge of data storage, retrieval and manipulation in radiation therapy	<ul style="list-style-type: none"> <li>• Understands the methods used for the storage of data.</li> <li>• Understands the function of DICOM and its role in defining the protocols for storing, querying, retrieving, and sending digital images.</li> <li>• Uses the planning systems within the</li> </ul>

	workplace to accurately co register data, plan the treatment for the specific patient cases
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## Standard 3b.2 Demonstrates the broad and relevant knowledge of the practice underpinning 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: Demonstrate a thorough knowledge of the principles of Radiation Therapy and their clinical application	
Indicators	Cues
1. Demonstrates knowledge of patient assessment, positioning, immobilisation and construction of ancillary equipment	<ul style="list-style-type: none"> <li>• Assesses the patient to verify the clinical history is accurate.</li> <li>• Plans the procedure according to the individual patient, accounting and recording any modifications which may be required.</li> <li>• Positions the area being planned, to ensure demonstration of the required anatomical structures taking into account anatomical landmarks</li> <li>• Constructs ancillary equipment to assist with immobilisation and stabilisation of the patient when required</li> <li>• Uses accessory positioning and immobilisation devices when necessary.</li> </ul>
2. Demonstrates a thorough knowledge of simulation, including tumour localisation and treatment planning	<ul style="list-style-type: none"> <li>• Performs all simulation procedures confidently and safely.</li> <li>• Positions patient and equipment correctly so that quality images are produced in the simulation process</li> <li>• Ensures that all required patient simulation data is acquired for planning purposes</li> <li>• Can perform the complete range of standard/routine radiation therapy prescriptions and techniques</li> <li>• Selects the appropriate treatment planning technique for the anatomical sites</li> <li>• Has knowledge and understanding of simulation and planning for paediatric cases</li> </ul>
3. Demonstrates a thorough knowledge of the rationale for selection of treatment technique	<ul style="list-style-type: none"> <li>• Able to define the appropriate technique to treat various tumour presentations as defined by the prescribing radiation</li> </ul>

	<p>oncologist.</p> <ul style="list-style-type: none"> <li>• Presents recommendations for the appropriate modality to achieve the outcomes for treatment</li> </ul>
4. Demonstrates a thorough knowledge of the principles of the imaging process for planning and treatment verification purposes	<ul style="list-style-type: none"> <li>• Knowledge of the capabilities and use of equipment in imaging for planning purposes.</li> <li>• Knowledge and application of the range of imaging procedures required for simulation and treatment</li> <li>• Determines and selects parameters to achieve the appropriate images simulation and treatment verification.</li> <li>• Applies the correct protocols for treatment verification imaging</li> </ul>
5. Demonstrate a thorough knowledge of the operation of equipment in a manner appropriate for its function	<ul style="list-style-type: none"> <li>• Understands the applications and limitations of radiation therapy equipment.</li> <li>• Ensures that the correct radiation therapy equipment is used for both planning and treatment purposes.</li> <li>• Uses radiation therapy equipment to deliver treatment safely and accurately. Recognises faulty or unsafe equipment</li> <li>• Follows appropriate procedures in response to faulty or unsafe equipment.</li> <li>• Limitations of the equipment are known and a plan is reconsidered if the treatment outcome cannot be achieved.</li> </ul>
6. Demonstrates a thorough knowledge of simulation and treatment delivery quality assurance (QA) procedures	<ul style="list-style-type: none"> <li>• Knowledge and application of procedures used in QA of the simulation and treatment units.</li> <li>• Follows department policies and procedures when the QA results are not within the specified limits</li> </ul>
7. Demonstrate a thorough knowledge of monitoring and care of the patient	<ul style="list-style-type: none"> <li>• Ensures that the patient is continuously monitored and their needs attended to whilst in the radiation therapy facility</li> <li>• Refers patient to the appropriate members of the multidisciplinary team as required</li> <li>• Proceeds with treatment and planning of the patient accounting for their condition.</li> <li>• Works with the team to ensure timely</li> </ul>

	delivery of treatment
8. Demonstrate a thorough knowledge of the principles of patient management including adjuvant and concomitant therapy	<ul style="list-style-type: none"> <li>• Understands that patients may have adjuvant and concomitant treatment with radiation therapy</li> <li>• Identifies and ensures that that any adjuvant therapies are incorporated into the patient’s clinical pathway and managed appropriately for quality outcomes.</li> <li>• Follow all requirements of a clinical trial for which a patient is enrolled</li> </ul>
9. Demonstrate a knowledge of the principles of brachytherapy, orthovoltage, teletherapy and clinical applications of specialised and emerging technologies	<ul style="list-style-type: none"> <li>• Knowledge of sealed and unsealed sources</li> <li>• Knowledge of orthovoltage radiation therapy</li> <li>• Knowledge of megavoltage radiation therapy</li> <li>• Knowledge of applicable imaging modalities</li> </ul>
<b>Element 2: Demonstrate a thorough knowledge of Radiation Therapy procedures and their application to patient welfare</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrate a knowledge of safe work environment within the context of radiation safety and protection policies	<ul style="list-style-type: none"> <li>• Understands and applies radiation protection principles.</li> <li>• Operates equipment safely</li> <li>• Wears personal radiation monitoring device</li> </ul>
2. Practice is maintained according to the ALARA principle	<ul style="list-style-type: none"> <li>• Follows the ALARA principle in simulation, planning and treatment.</li> <li>• verifies location of any previous treatment and takes steps to incorporate into current treatment, modifying plan if required</li> <li>• Determines the most appropriate scan and limits after reviewing clinical information and assessing the patient.</li> <li>• Uses additional shielding devices to protect radiosensitive organs as appropriate</li> <li>• Checks pregnancy status of all female patients of child-bearing age.</li> <li>• Takes all possible steps to minimise dose to foetus if treatment of a pregnant patient is clinically indicated</li> <li>• Manage Patients with implanted devices, in compliance with the local policy.</li> </ul>
3. Assumes responsibility for	<ul style="list-style-type: none"> <li>• Applies rationale for selection of various</li> </ul>

performance of appropriate clinical skills in radiation therapy	<p>treatment modalities at the time of prescription.</p> <ul style="list-style-type: none"> <li>• Understands and applies principles of imaging for Radiation Therapy planning and treatment verification purposes.</li> <li>• Explores treatment technique options with the prescribing doctor, to produce the best outcome for the patient</li> <li>• Demonstrates application of radiation therapy planning principles.</li> <li>• Radiation therapy planning and treatment is conducted within a team framework.</li> </ul>
4. Demonstrate a thorough knowledge of the requirement of different imaging techniques in relation to radiation therapy	<ul style="list-style-type: none"> <li>• Advises other healthcare professionals about the requirements of imaging modalities for radiation therapy planning as appropriate</li> <li>• Performs imaging and treatment appropriate to the patient's presenting history and condition</li> </ul>
5. Evaluate the appropriateness of radiation therapy images produced	<ul style="list-style-type: none"> <li>• Determine whether the images produced meet the requirements of the prescription</li> <li>• Determine whether further imaging is required.</li> </ul>
6. Demonstrate a thorough knowledge of critical organ doses	<ul style="list-style-type: none"> <li>• Demonstrate a knowledge of organs at risk and applies the appropriate tolerance doses to these areas</li> <li>• Ensures dose to organs at risk is documented appropriately</li> <li>• Ensures that the area being simulated is restricted to the required anatomical structures.</li> <li>• Ensures that repeat imaging is only performed when the initial images do not adequately answer the clinical question</li> <li>• Ensures that any additional imaging is for the benefit of the patients' treatment</li> </ul>
<b>Element 3: Demonstrate an understanding of Radiation Therapy procedures to contribute effectively to healthcare team decision- making</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrate a thorough knowledge and understanding of the healthcare team in the care of the patient	<ul style="list-style-type: none"> <li>• Understands the situations which are best addressed by a team approach.</li> <li>• Suggests an integrated team approach when appropriate.</li> </ul>

2. Demonstrate a thorough knowledge and understanding of referral information	<ul style="list-style-type: none"> <li>• Ensures that referral forms are completed with all required information.</li> <li>• Take appropriate action when an incorrect procedure is requested.</li> <li>• Understands the responsibility to recognise and take action when a patient requires additional assistance outside the scope of planning and treatment specific issues.</li> </ul>
3. Demonstrate a thorough knowledge and understanding of adapting work practices to meet the needs of individual patients and situations	<ul style="list-style-type: none"> <li>• Tailors the planning and treatment processes to the individual patient.</li> <li>• Monitors and prioritises own workflow.</li> </ul>
<b>Element 4: Demonstrate a thorough knowledge of information management</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrate a thorough knowledge of organisational and management structure	<ul style="list-style-type: none"> <li>• Demonstrate an understanding of the organization structure.</li> <li>• Recognise the management of the organisation and how it fits within the health service as a whole.</li> </ul>
2. Demonstrate an appropriate knowledge of information technology associated with radiation therapy	<ul style="list-style-type: none"> <li>• Has the appropriate level of computer skills required for their scope of practice</li> <li>• Understands the computer systems and programs relevant to the radiation therapy department.</li> </ul>

## Domain 4: Critical Thinking and Evaluation

Standard 4.1	Assesses clinical situations, determines the key issues and deliver a timely and quality outcome
Standard 4.2	Evaluates and implements processes and procedures for ensuring quality outcomes
Standard 4.3	Analyses and respond to problems related to patients' treatment and care
Standard 4.4	Analyses and respond to problems of operation and management
Standard 4.5	Initiates and evaluates research outcomes and incorporate into evidence based practice where relevant

This domain encompasses the ability of the radiographer or radiation therapist to think critically, creatively and reflectively. It covers the use of effective evaluation methods for assessing each individual clinical situation, and formulating an appropriate course of action for dealing with the situation. The ability to reflect critically on one's own methods, and review and modify when indicated, is an essential component of effective clinical practice. Another key requirement is the Identification of problems in the clinical arena and the application of problem solving skills. Research and evidence based practice is a component of this domain.

### Standard 4.1 Assess clinical situations, determines the key issues and deliver a quality outcome

This standard relates to clinical reasoning and judgment and their role in providing quality clinical services to patients. The radiographer or radiation therapist'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: Apply critical thinking and problem solving skills to formulate appropriate clinical decisions	
Indicators	Cues
1. Evaluate the referral and respond so that the procedure is delivered appropriately and accurately	<ul style="list-style-type: none"> <li>Provides the appropriate procedure for each patient by applying professional judgement to each case individually.</li> </ul>
2. Procedures are tailored to the patient's needs and condition	<ul style="list-style-type: none"> <li>Use of appropriate techniques and equipment.</li> </ul>

<b>Element 2: Apply critical thinking skills to time management and resource use</b>	
<b>Indicators</b>	<b>Cues</b>
1. Manage time and resources	<ul style="list-style-type: none"> <li>• Efficiently uses resources while maintaining standards of clinical practice and patient care.</li> <li>• Assume responsibility for own work ethics and attitude.</li> </ul>
2. Work safely and accurately within time management constraints	<ul style="list-style-type: none"> <li>• Manage time effectively, including prioritisation of work load whilst delivering high standards of care.</li> </ul>
<b>Element 3: Evaluation of the appropriateness of the clinical information provided</b>	
<b>Indicators</b>	<b>Cues</b>
1. Evaluate the appropriateness of patient information provided	<ul style="list-style-type: none"> <li>• Ensures sufficient clinical information has been provided.</li> <li>• Seeks additional information from the referring doctor if required</li> <li>• Confirms and seeks information from the patient</li> </ul>

## Standard 4.2 Evaluate and implement processes and procedures for ensuring quality outcomes

This standard looks at the evaluation processes used to establish continuous quality improvement. It aims to ensure that procedures developed are based on patients' needs and that procedures are based on predetermined protocols. This standard also incorporates self-evaluation and reflective practice, which improves the quality of care, and leads to increased professional growth and development.

<b>Element 1: Ensure all procedures are provided in accordance with definitive protocols and standards of practice</b>	
<b>Indicators</b>	<b>Cues</b>
1. Departmental protocols for standard procedures are known and adhered to	<ul style="list-style-type: none"> <li>• Knowledge of and compliance with standard procedures.</li> </ul>
<b>Element 2: Evaluate personal practice on an ongoing basis</b>	
<b>Indicators</b>	<b>Cues</b>
1. Collect review and interpret a range of information from a range of sources	<ul style="list-style-type: none"> <li>• Ongoing critical reflection takes place to constantly improve skills and knowledge base.</li> <li>• Collects and analyses data on actual performance</li> <li>• Seeks and considers feedback on performance from supervisors with a goal of continual improvement.</li> </ul>
<b>Element 3: Ability to audit, reflect upon and review individual professional practice</b>	
<b>Indicators</b>	<b>Cues</b>
1. Audits practice by reflecting on, and reviewing performance	<ul style="list-style-type: none"> <li>• Undertakes regular self-evaluation and reflects on clinical practice methods.</li> <li>• Benchmark personal practice.</li> <li>• Identify and implement corrective actions</li> </ul>
2. Recognise self-assessment, reflective learning, peer review and performance review as sources of feedback on professional performance	<ul style="list-style-type: none"> <li>• Describes the reflective learning and peer review processes.</li> <li>• Feedback is sought from supervisors and peers with a goal of continual improvement.</li> <li>• Participates in self-assessment processes.</li> <li>• Seeks and understands regular performance review.</li> </ul>

<b>Element 4: Analyse and document issues related to reportable incidents, with recommendations for future corrective actions</b>	
<b>Indicators</b>	<b>Cues</b>
1. Incidents involving staff, patients and the public are reported, analysed documented and actioned promptly through compliance with local protocols	<ul style="list-style-type: none"> <li>• Incidents are documented using the appropriate channels clearly and completely in a timely fashion.</li> <li>• Understands the need to be accountable.</li> </ul>

## Standard 4.3 Analyses and responds to problems related to patient treatment and care

This standard relates to the ability of radiographers and radiation therapists 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.

<b>Element 1: Identify problems as they arise in clinical practice</b>	
<b>Indicators</b>	<b>Cues</b>
1. Reflect upon clinical practice to recognise potential problems as they arise	<ul style="list-style-type: none"> <li>• Predicts potential problems, and reacts appropriately to prevent the problem or minimise its effect.</li> <li>• Addresses problems which directly impact on immediate workflow as they occur.</li> </ul>
2. Analyses the reason for the problem	<ul style="list-style-type: none"> <li>• Ascertains and describes the cause of problems.</li> <li>• Analyses and describes factors which may lead to an escalation of the issue.</li> <li>• Identifies all involved factors to ensure a comprehensive understanding of the problem.</li> </ul>
<b>Element 2: Apply knowledge and experience to solve problems and ensure care is delivered to achieve best practice</b>	
<b>Indicators</b>	<b>Cues</b>
1. Develops a plan for resolving the problem.	<ul style="list-style-type: none"> <li>• Explores options to resolve the issue.</li> <li>• Formulates varying approaches to resolve the problem.</li> <li>• Selects the most appropriate solution for the best possible outcome.</li> <li>• Applies critical thinking and problem solving strategies when indicated.</li> </ul>
2. Uses a collaborative approach to reach a resolution	<ul style="list-style-type: none"> <li>• Aim to find a solution which suits all affected parties wherever possible.</li> <li>• Gain the cooperation of all parties in the implementation of the agreed solution to the problem.</li> </ul>
<b>Element 3: Monitors and reviews the issue and modifies solutions as required</b>	
<b>Indicators</b>	<b>Cues</b>
1. Regularly reviews the situation	<ul style="list-style-type: none"> <li>• Reviews the situation to ensure there has</li> </ul>

once a solution has been established and implemented	<p>been complete resolution of the issue.</p> <ul style="list-style-type: none"> <li>• Identifies the need for further action if required.</li> </ul>
<b>Element 4: Apply reasoning and problem solving skills to determine appropriate clinical decisions</b>	
<b>Indicators</b>	<b>Cues</b>
1. Manage non standard situations	<ul style="list-style-type: none"> <li>• Continue to acquire and apply a strong knowledge base of the principles of radiography or radiation therapy and uses this knowledge to make informed decisions regarding clinical practice in non-standard situations.</li> <li>• Undertakes the examination or treatment based on the patient's condition, and applies the most appropriate technique</li> </ul>
2. Respond effectively to emergent needs	<ul style="list-style-type: none"> <li>• Adjusts techniques accordingly if the situation changes.</li> <li>• Makes decisions including modifying or halting the procedure according to the patient's needs.</li> </ul>
<b>Element 5: Reflect upon decisions to modify future practices</b>	
<b>Indicators</b>	<b>Cues</b>
1. Adopt a questioning approach	<ul style="list-style-type: none"> <li>• Understands and engages in reflective practice</li> </ul>
2. Reflect upon practice modifications and their impact	<ul style="list-style-type: none"> <li>• Plans and modifies approach as a result of reflection.</li> <li>• Evaluates the changes and determines the potential to incorporate them into standard practice.</li> </ul>

## Standard 4.4 Analyses and responds to problems of operation and management

This standard deals with analysing and defining issues and suggesting improvement strategies that focus on delivering quality patient care, whilst operating as efficiently as possible.

<b>Element 1: Identify problems and apply systematic and logical approaches to their resolution</b>	
<b>Indicators</b>	<b>Cues</b>
1. Identify the problem and seek an effective solution	<ul style="list-style-type: none"><li>• Investigates situations, determines problems, and identifies all potential solutions.</li></ul>
<b>Element 2: Initiate resolution of problems to ensure prescribed protocols are maintained</b>	
<b>Indicators</b>	<b>Cues</b>
1. Initiate resolution	<ul style="list-style-type: none"><li>• Demonstrates personal initiative and is able to initiate resolution of problems.</li><li>• Develops techniques to determine solutions to clinical problems not previously encountered.</li></ul>

## Standard 4.5 Evaluate and implement research outcomes and incorporate into practice where relevant

This standard deals with the radiographer or radiation therapist's ability to critically evaluate published research, and identify strengths and weaknesses. It also covers judging the overall quality of research regarding its application to clinical practice, and incorporation of research into clinical practice when appropriate.

<b>Element 1: Evaluate the appropriateness of implementing research findings into practice</b>	
<b>Indicators</b>	<b>Cues</b>
1. Analytical approach to research used	<ul style="list-style-type: none"> <li>• Research is critically evaluated with respect to clinical questions.</li> </ul>
2. Newly gained knowledge is considered in the context of its application to clinical practice	<ul style="list-style-type: none"> <li>• Research findings are critically analysed regarding their application to clinical practice.</li> <li>• Demonstrates analytical skills when evaluating current research.</li> <li>• Knowledge obtained from conferences, workshops and seminars is shared, discussed and reviewed</li> </ul>
<b>Element 2: Apply research and evaluation findings to practice</b>	
<b>Indicators</b>	<b>Cues</b>
1. Seeks to apply newly gained knowledge in the clinical environment	<ul style="list-style-type: none"> <li>• Seeks to introduce research findings into practice.</li> <li>• Research findings are discussed with colleagues.</li> </ul>
2. Engage in evidence based practice	<ul style="list-style-type: none"> <li>• Facilitates evidence-based decision making resulting in improved patient outcomes.</li> <li>• Applies an evidence-based approach to daily practice.</li> <li>• Uses evidence base when proposing new protocols.</li> </ul>

## Domain 5: Service Delivery and Clinical Management

Standard 5.1	Management of quality issues relating to effective practice
Standard 5.2	Demonstrates effective clinical management of individuals
Standard 5.3	Contributes to maintaining a safe working environment
Standard 5.4	Plans resources for service delivery

### Standard 5.1 Management of quality issues relating to effective practice

This standard encompasses the responsibility radiographers and radiation therapists have for ensuring the quality of professional services is maintained and improved for the benefit of patients. It deals with quality control and quality assurance activities, including those which are regulated through official accreditation pathways, and those undertaken to ensure the equipment is functioning appropriately, and that the imaging produced, or therapeutic treatment delivered, is of the highest standard.

Element 1: Evaluates the quality of practice in the clinical setting	
Indicators	Cues
1. Routine clinical practice is evidence based	<ul style="list-style-type: none"> <li>Ensures services are provided in accordance with professional standards.</li> <li>Complies with policies and procedures for treatment methods that are consistent with professional standards.</li> <li>Recognises that quality improvement is a continuous process incorporating new developments and standards of practice.</li> </ul>
Element 2: Contributes to quality assurance procedures	
Indicators	Cues
1. Understands the principles of quality assurance	<ul style="list-style-type: none"> <li>Understands the quality assurance processes relevant to their profession including those specific to any subspecialties worked in.</li> <li>Recognises the need to monitor and evaluate practice to maintain high quality service.</li> <li>Contributes to the maintenance of documented evidence of quality assurance activities</li> <li>Understands the role of audit and review as it relates to quality assurance.</li> </ul>

2. Contributes to risk assessment, audit and quality assurance	<ul style="list-style-type: none"> <li>• Participates in departmental quality assurance programmes.</li> <li>• Understands the role quality assurance procedures play in risk management.</li> <li>• Works towards continual improvement.</li> <li>• Assesses the risk of activities in the clinical setting and manages the risk in an appropriate manner.</li> <li>• Follows the risk management process and protocols as defined by the workplace.</li> </ul>
3. Evaluates results and takes appropriate action when indicated	<ul style="list-style-type: none"> <li>• Compares quality assurance results to baseline acceptable values.</li> <li>• Ensures all values achieved in quality assurance tests fall within the predetermined limits.</li> <li>• Repeats tests when necessary and takes corrective action if the control limits are not achieved.</li> <li>• Records problems relating to equipment in the appropriate manner</li> <li>• Reports the potential risks to the relevant parties to ensure that risk minimisation is adhered to.</li> <li>• Follows through with the relevant parties to ensure corrective action is taken.</li> </ul>

**Element 3: Contributes to enhanced service quality**

<b>Indicators</b>	<b>Cues</b>
1. Understands the patient’s right to receive safe and high quality diagnostic or therapeutic services	<ul style="list-style-type: none"> <li>• Recognises and acts upon the obligation to apply professional care and expertise to deliver quality services.</li> <li>• Leads by example and promotes consistent high quality work from others.</li> <li>• Deliver a high quality service to patients by maintaining professional standards.</li> </ul>
2 Understands the means by which the quality of diagnostic or therapeutic services can be maintained and improved	<ul style="list-style-type: none"> <li>• Differentiates between quality improvement and quality assurance.</li> <li>• Applies quality assurance and quality improvement methods.</li> </ul>
3. Accepts responsibility for assuring the quality of professional services provided	<ul style="list-style-type: none"> <li>• Identifies mechanisms through which the quality of diagnostic or therapeutic services can be maintained and improved.</li> <li>• Complies with and maintains policies and procedures which are conducive to quality</li> </ul>

	<p>practice.</p> <ul style="list-style-type: none"> <li>• Maintains a high personal standard.</li> <li>• Follows departmental policies and protocols to ensure consistency in image quality.</li> <li>• Maintains equipment to ensure safe operation and reports issues with equipment.</li> <li>• Maintains skills in image review for treatment verification in radiation therapy.</li> <li>• Understands the tools and methods available for monitoring the quality of professional services provided</li> <li>• Self-audits the quality of professional services provided against standards and guidelines to identify where change would be beneficial.</li> <li>• Contributes to evaluation of service delivery.</li> <li>• Uses feedback about service to implement any changes required to their practice.</li> </ul>
<p>4. Seeks continuous improvement in service quality</p>	<ul style="list-style-type: none"> <li>• Participates in quality improvement or quality assurance activities.</li> <li>• Reviews workplace practices to identify any requirements to modify a standard procedure.</li> <li>• Promotes an environment of continuous improvement.</li> </ul>
<p>5. Shows initiative in implementing and evaluating changes to practice</p>	<ul style="list-style-type: none"> <li>• Manage change within the evolving medical imaging or therapeutic environment.</li> <li>• Communicates information relating to changes in practice to colleagues.</li> </ul>

## Standard 5.2 Demonstrate effective clinical management of patients

This standard relates to the radiographer or radiation therapist's responsibility to ensure that the procedures carried out are applicable and relevant for the patient's. It covers compliance with standard procedures, documentation, and collaboration with other members of the professional team to confirm that patients have the optimum outcome from each procedure.

<b>Element 1: Document and apply clinical procedures</b>	
<b>Indicators</b>	<b>Cues</b>
1. Prepare and accurately document clinical procedures	<ul style="list-style-type: none"> <li>• Recognises the importance of record keeping.</li> <li>• Apply standard procedure and protocols</li> <li>• Maintains appropriate, accurate, and legible records.</li> </ul>
<b>Element 2: Participate in patient care in consultation with the team</b>	
<b>Indicators</b>	<b>Cues</b>
1. Recognition of the patients progress through the management of their condition in the context of the multidisciplinary team	<ul style="list-style-type: none"> <li>• Collaborates with other members of the healthcare team to make treatment recommendations that facilitate quality patient care.</li> <li>• Works within the team to provide treatment that is focused on both the physical and psychological needs of the patient.</li> </ul>
2. Determines the appropriate examination for the patient condition	<ul style="list-style-type: none"> <li>• Determines and selects appropriate examination based on established protocols.</li> </ul>
3. Initiates the appropriate patient care at all stages of treatment	<ul style="list-style-type: none"> <li>• Identifies the needs of the individual patient.</li> <li>• Provides the appropriate care throughout the treatment.</li> </ul>
4. Evaluates each clinical situation and the range of available and appropriate interventions that may be required in a timely fashion	<ul style="list-style-type: none"> <li>• Knows basic life support methods.</li> <li>• Has knowledge of and is able to implement the procedure to follow in case of a clinical emergency.</li> </ul>
5. Make judgments from the verbal and physical presentation of a patient and information from referring practitioners	<ul style="list-style-type: none"> <li>• Collects information from a range of sources, and uses this accordingly to determine the appropriate examination.</li> <li>• Procedures are tailored to the patient based on the information collected.</li> </ul>

## Standard 5.3 Contribute to maintaining a safe working environment

This standard deals with the responsibility each radiographer or radiation therapist has by law to maintain the working environment in a safe and hazard-free state. It covers risk management, personal, staff and patient safety.

Element 1: Accepts responsibility for maintaining a safe working environment.	
Indicators	Cues
1. Understands the need to maintain a safe working environment	<ul style="list-style-type: none"> <li>• Complies with Occupational Health and Safety legislation.</li> <li>• Maintains the work environment in compliance with Occupational Health and Safety legislation</li> <li>• Complies with regulations relating to workplace safety.</li> <li>• Undertakes the required workplace training.</li> <li>• Reports any bullying and harassment within the workplace</li> </ul>
2. Knowledge of risk management protocols	<ul style="list-style-type: none"> <li>• Complies with risk management protocols.</li> <li>• Promotes a safety culture within the work environment.</li> <li>• Knowledge of safety procedures including evacuation routes, and the actions to follow in the case of fire.</li> </ul>
3. Maintains workplace safety	<ul style="list-style-type: none"> <li>• Complies with workplace safety policies and procedures.</li> <li>• Maintains work environment in a clean, tidy, hygienic and hazard-free state.</li> <li>• Undertakes manual handling training, and applies principles.</li> <li>• Applies ergonomic principles in practice to prevent injuries.</li> <li>• Participates in compulsory emergency procedures training.</li> <li>• Identifies potential hazards and deals with them effectively.</li> <li>• Acts to ensure that the physical and radiation safety of all personnel in the workplace is maintained.</li> <li>• Maintains controlled access to x-ray or treatment rooms to prevent accidental</li> </ul>

	exposure to radiation. <ul style="list-style-type: none"> <li>• Treats equipment in an appropriate manner</li> </ul>
4. Complies with workplace security systems and policies	<ul style="list-style-type: none"> <li>• Understands the key security systems for the workplace.</li> <li>• Understands the methods for ensuring patient records and information are secure.</li> </ul>

## Standard 5.4 Plan resources for service delivery

This standard relates to the ability of radiographers and radiation therapists to prioritise workload and work flow 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 need to provide adequate staffing levels	<ul style="list-style-type: none"> <li>• Is aware of the link between excessive workload and fatigue, stress, and error.</li> <li>• Considers workload and staffing levels in order to maintain standards of patient care.</li> <li>• Takes regular breaks to avoid fatigue and resultant errors.</li> </ul>
2. Ensures accessory equipment and stock is adequate for the workload	<ul style="list-style-type: none"> <li>• Ensures adequate accessory equipment and stock are available for workload.</li> </ul>
Element 2: Manages resources appropriately	
Indicators	Cues
1. Makes best use of available resources	<ul style="list-style-type: none"> <li>• Effectively manages resources according to the workload.</li> <li>• Formulates plans including timeframes for completion of allocated tasks.</li> <li>• Uses disposables efficiently and minimises waste.</li> </ul>
2. Ensure waste products are disposed of safely	<ul style="list-style-type: none"> <li>• Follows protocols for the disposal of sharps and biohazardous waste.</li> </ul>

## Domain 6: Lifelong Learning

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

### Standard 6.1 Demonstrates commitment to ongoing professional development

This standard covers acceptance and understanding of, and commitment, to the concept of continuing professional development which is essential to maintain and enhance professional skills and knowledge. It is essential that radiographers and radiation therapists keep current with 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 participation	<ul style="list-style-type: none"> <li>Understands the role lifelong learning plays in professional development, in delivering contemporary quality procedures.</li> <li>demonstrates evidence of lifelong learning relevant to their profession</li> </ul>
Element 2: Uses professional practice standards to assess own performances	
Indicators	Cues
1. Reflects on own professional knowledge	<ul style="list-style-type: none"> <li>Reflects on practice to identify own professional development requirements.</li> <li>Identifies and acknowledges limitations to knowledge.</li> <li>Determines own educational needs.</li> </ul>
Element 3: Participates regularly in continuing professional development	
Indicators	Cues
1. Engages in and reflects upon professional development to reach goals	<ul style="list-style-type: none"> <li>Compares learning and development accomplishments with previously determined goals to ensure they are being met.</li> <li>Maintains continuing professional development throughout career.</li> <li>Employs efficient strategies for continually developing knowledge and skills.</li> <li>Takes full advantage of educational opportunities.</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintains a thorough record of involvement in continuing professional development.</li> <li>• Undertake independent and self-directed study and learning</li> </ul>
2. Demonstrates an understanding of developments and trends in radiography or radiation therapy	<ul style="list-style-type: none"> <li>• Undertakes education to ensure current knowledge of advancements in medical imaging and radiation therapy.</li> <li>• Takes responsibility to seek out information relating to technological developments and updating personal knowledge base.</li> <li>• Undertakes appropriate education related to new areas of clinical practice.</li> </ul>
<b>Element 4: Participates in training programs related to the introduction of new technologies and procedures</b>	
<b>Indicators</b>	<b>Cues</b>
1. Undertakes applications training following the installation of new equipment	<ul style="list-style-type: none"> <li>• Reads the appropriate manuals regarding operation and safe use of equipment before use.</li> <li>• Participates in training on new equipment prior to using.</li> <li>• Ensures limitations and capabilities of new equipment is understood.</li> <li>• Implements any required practice change subsequent to equipment installation.</li> </ul>
<b>Element 5: Commits to the development of the profession</b>	
<b>Indicators</b>	<b>Cues</b>
1. Participates in Australian Institute of Radiography's activities	<ul style="list-style-type: none"> <li>• Understands the benefits to the individual of participating in the professional organisation.</li> </ul>
2. Undertakes activities to advance the profession	<ul style="list-style-type: none"> <li>• Supports activities involved in research, investigation and publication for the advancement of radiography and radiation therapy as a profession.</li> <li>• Is an ambassador for the Medical radiation science profession.</li> </ul>

## Standard 6.2 Participates in the education and training of students and graduate practitioners

This standard relates to the responsibility radiographers and radiation therapists have assisting students and graduates to acquire the knowledge, skills and attitudes required by the Australian Institute of Radiography for professional practice. It also deals with the role feedback provides during the learning process.

<b>Element 1: Participates in education of students and graduates undertaking supervised clinical practice</b>	
<b>Indicators</b>	<b>Cues</b>
1. Engages in provision of appropriate clinical practice for students and graduates relevant to their stage of education and experience	<ul style="list-style-type: none"> <li>• Supports students and graduates to work appropriately to gain the maximum experience from procedures they undertake.</li> <li>• Maintains a positive and helpful attitude</li> <li>• Enables others to learn from own experience.</li> <li>• Promotes opportunities for cooperative learning.</li> <li>• Provides learning opportunities which are relevant and diverse.</li> <li>• Facilitates experiential learning by providing the opportunity to participate in procedures beyond their current competence level under supervision.</li> <li>• Communicates information, ideas and techniques, and encourages the use of problem solving skills.</li> <li>• Helps set specific achievable goals and outcomes for clinical practice.</li> <li>• Encourages the development of reflective practice</li> <li>• Provides constructive feedback to students and graduates to facilitate their learning.</li> <li>• Recognises the importance of role modeling expected behaviors' and attitudes.</li> </ul>
<b>Element 2: Evaluates the progress of students towards expected outcomes</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates the ability to provide	<ul style="list-style-type: none"> <li>• Evaluates performance against established</li> </ul>

formal and informal feedback arising from training provided	<p>criteria for the learning objectives and the clinical placement restrictions.</p> <ul style="list-style-type: none"> <li>• Evaluates performance based on a variety of sources and procedures.</li> <li>• Provides specific, objective and accurate feedback in a timely manner.</li> <li>• Ensures feedback is given regularly throughout the learning process.</li> <li>•</li> </ul>
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### Standard 6.3 Participates in supporting the learning of others

This standard relates to the role radiographers and radiation therapists have as a health professional 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 other professional staff, patients and wider community	<ul style="list-style-type: none"> <li>• Engages in educating other professionals and the public about medical imaging or radiation therapy practice.</li> <li>• Educates other professionals and the public about the roles of the radiographer or radiation therapist.</li> <li>• Ensures that the information presented is evidence based, accurate and current.</li> </ul>
2. Participates in formal and informal education opportunities involving colleagues and peers	<ul style="list-style-type: none"> <li>• Undertakes formal or informal education sessions with colleagues and health professionals from other disciplines.</li> <li>• Presents or contributes to staff development sessions.</li> </ul>

## 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. Radiographers and radiation therapists should support ways to increase research capacity within their practice and incorporate initiatives for continual improvement to clinical outcomes.

<b>Element 1: Demonstrates an understanding of the significance of research in contemporary practice</b>	
<b>Indicators</b>	<b>Cues</b>
1. Recognises the value of research in the development of the science and the practice of radiography or radiation therapy	<ul style="list-style-type: none"> <li>Understands the relevance of research for improving individual health outcomes.</li> </ul>
2. Demonstrates an understanding of the relevant research methods to the practice of radiography or radiation therapy	<ul style="list-style-type: none"> <li>Is aware of a range of different research methods and how they can be applied.</li> </ul>
3. Recognises the impact of research on contemporary practice	<ul style="list-style-type: none"> <li>Shares conclusions of research activities with the profession.</li> <li>Discusses the implications of research with colleagues.</li> <li>Evaluates new evidence based methods of practice and incorporates them into own practice.</li> </ul>
<b>Element 2: Demonstrates knowledge of research as it relates to Radiography or Radiation therapy</b>	
<b>Indicators</b>	<b>Cues</b>
1. Demonstrates knowledge of ethical foundation of research	<ul style="list-style-type: none"> <li>Supporting the conduct of research in accordance with all institutional ethics committees, and comply with the ethical principles outlined by the relevant State, National and International organisations.</li> <li>Distinguishes between ethical and non-ethical research</li> <li>Understands the principles of ethical research procedures.</li> <li>Discusses the ethical issues involved with research.</li> </ul>
2. Demonstrates knowledge of principles of evidence based practice	<ul style="list-style-type: none"> <li>Ensures the use of current evidence to aid in decision making</li> <li>Understands how to review and critically evaluate literature with respect to research</li> </ul>

	methodology, data collection and analysis
<b>Element 3: Support developments in the science and practice of radiography and radiation therapy</b>	
<b>Indicators</b>	<b>Cues</b>
1. Support developments in the science and practice of radiography and radiation therapy	<ul style="list-style-type: none"> <li>• Contribute to the development of the radiography and radiation therapy knowledge base.</li> <li>• Identifies areas within practice which may benefit from scientific investigation.</li> </ul>

# References

- American Registry of Radiologic Technologists. *ARRT Standards of Ethics*. American Registry of Radiologic Technologists. Saint Paul, Minnesota; 2012.
- American Society of Radiologic Technologists (2012) *Best Practices in Digital Radiography*. American Society of Radiologic Technologists, Albuquerque; 2012.
- American Society of Radiologic Technologists (2011) *The Practice Standards for Medical Imaging and Radiation Therapy*
- Australian Guidelines for the prevention and control of infection in healthcare (2010)
- Australian Institute of Radiography. *Code of Ethics*. Australian Institute of Radiography, Melbourne; 2002.
- Australian Institute of Radiography. *Competency Based Assessment for the Accredited Practitioner*. Australian Institute of Radiography, Melbourne; 2009.
- Australian Institute of Radiography. *Competency Based Standards for the Accredited Practitioner*. Australian Institute of Radiography, Melbourne; 2005.
- Australian Institute of Radiography. *Guidelines for Professional Conduct for Radiographers, Radiation Therapists and Sonographers*. Australian Institute of Radiography, Melbourne; 2007.
- Australian Institute of Radiography. *Discussion Paper: A model of advanced practice in Diagnostic Imaging and Radiation Therapy in Australia*. Australian Institute of Radiography, Melbourne; 2009.
- Australian and New Zealand Podiatry Accreditation Council Inc. (2009) *Podiatry Competency Standards for Australia and New Zealand*
- Australian Nursing and Midwifery Council (2005) *National Competency Standards for the Registered Nurse*
- Australian Physiotherapy Council (2006) *Australian Standards for Physiotherapy*
- Caldwell K, Henshaw L, Taylor G. Developing a framework for critiquing health research. *Journal of Health, Social and Environmental Issues*. 2005; 6(1): 45-54.
- Canadian Association of Medical Radiation Technologists (2006, revised 2011) *Radiological Technology Competency Profile*

College of Radiographers (2002, revised 2004) *Statements for Professional Conduct*

Community Services and Health Industry Training Board (2005) *Competency Standards for Health and Allied Health Professionals in Australia*

Council on Chiropractic Education Australasia (2009) *Competency Based Standards for Chiropractors*

Darcy and Associates (2010) Review of Competency Based Standards for Medical Radiation Practitioners

Eraut M. Concepts of Competence. *Journal of Interprofessional Care*. 1998; 12(2): 127 – 139.

Fraser S, Greenhalgh T. Coping with complexity: educating for capability. *British Medical Journal*. 2001; 323(7316): 799-803.

Health Professions Council (2007) *Standards of Proficiency – Radiographers*

Irish Institute of radiography and Radiation therapy (2010) *Code of Professional Conduct for Diagnostic Radiographers and Radiation Therapists*

Keily P, Horton P, Chakman J. Competency standards for entry-level to the profession of optometry 1997. *Clinical and Experimental Optometry*. 1998; 81(5): 210 – 221.

Medical Radiation Practice Board of Australia (2012) *Practitioner Obligations under the National Law*

Medical Radiation Practitioners Board of Victoria (2011) *Code of Professional Conduct for Medical Radiation Practitioners of Victoria*

Neufeld, V. & Norman. G. (1985). *Assessing Clinical Competence*. New York: Springer Publishing Company

Pharmaceutical Society of Australia (2010) *National Competency Standards Framework for Pharmacists in Australia*

Rose, M & Best, D (Eds) (2005) *Transforming Practice through Clinical Education, Professional Supervision and Mentoring*. Elsevier Limited. Sydney.

Royal Australian and New Zealand College of Radiologists, Australian Institute of Radiography, Australasian College of Physical Scientists and Engineers in Medicine (2011) *Radiation Oncology Practice Standards*

Royal College of Radiologists, College of Radiographers, Children's Cancer and Leukaemia Group (2012) *Good Practice Guide for Paediatric Radiotherapy*

Williams P, Berry J. (1999). What is competence? A new model for diagnostic radiographers: Part 1. *Radiography*. 5: 221-235.

Williams P, Berry J. (2000). What is competence? A new model for diagnostic radiographers: Part 2. *Radiography*. 6: 35-42.

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