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## Imaging Clinical Practice Standard

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### 1. Purpose

The purpose of this policy is to establish minimum practice accreditation standards and requirements for the care and management of Imaging throughout the WA Country Health Service (WACHS).

Removing unwanted variation in clinical practice and following best practice guidelines has been found to reduce inappropriate care (overuse, misuse and underuse) thus improving health outcomes, reducing preventable harm and decreasing wastage.

### 2. Scope

All medical, nursing, midwifery and allied health staff employed within the WACHS.

All health care professionals are to work within their scope of practice appropriate to their level of training and responsibility.

Further information may be found via [HealthPoint](#) or the [Australian Health Practitioner Regulation Agency](#).

Medical Practitioners and Midwives performing bedside ultrasound examinations do not fall within the scope of this document.

### 3. Considerations

Diagnostic imaging practices in Australia are governed by a range of legislation, standards of practice, and accreditation requirements. This CPS aims to outline the minimum clinical practice standards applicable to WACHS imaging sites, but is not exhaustive. Each WACHS imaging site is responsible for ensuring that it complies with all relevant Commonwealth and State legislation, Department of Health (DoH) policies (including Mandatory Policies and Operational Directives), WACHS policies, accepted standards of practice, and other applicable directives.

### 4. General Information

Diagnostic imaging is a generic term which includes fluoroscopy, ultrasound, computed tomography, nuclear medicine, radiography, magnetic resonance imaging, positron emission tomography, mammography and bone densitometry. A diagnostic imaging service comprises of both a diagnostic imaging procedure and a report on that procedure, provided within a clinically appropriate timeframe.

Before being eligible to provide Medicare funded diagnostic imaging services, all WACHS sites must be registered with Medicare Australia hold a current Location Specific Practice Number (LSPN) and be accredited under the Diagnostic Imaging Accreditation Scheme.<sup>1</sup>

## 5. Accreditation

All public and private hospitals in WA, as defined in the *Health Services Act 2016* and associated standards, are required to be assessed against, and maintain accreditation to, the National Safety and Quality Health Service (NSQHS) Standards, as outlined in OD0410/12 [Implementation of the Australian Health Service Safety and Quality Accreditation Scheme and the National Safety and Quality Health Service Standards in Western Australia](#).

WACHS sites assessed and accredited against the Royal Australian and New Zealand College of Radiologists (RANZCR) [Standards of Practice for Diagnostic and Interventional Radiology](#).

WACHS Imaging service providers are to comply with the NSQHS Standards through adherence to respective site specific procedures and processes developed for that purpose.

In addition to the requirement to comply with NSQHS Standards; for the purpose of Medicare, any practice intending to provide Medicare eligible diagnostic imaging services must be accredited under [The Diagnostic Imaging Accreditation Scheme \(DIAS\)](#).<sup>1</sup>

## 6. Diagnostic Imaging Accreditation Scheme

The DIAS is divided into four parts:

- Part 1 – Organisational
- Part 2 – Pre-procedure Standards
- Part 3 – Procedure Standards
- Part 4 – Post Procedure Standards

### Part 1 – Organisational

#### Standard 1.1 Safety and Quality Governance Standard

All WACHS sites, which provide a diagnostic imaging service, are to have an established governance structure that is effective and comprehensive to ensure the delivery of safe, quality services. They are to maintain a current and documented Safety and Quality Manual, which must include the following information as a minimum:

- Relevant policies and procedures regarding:
  - governance
  - registration and licensing of personnel
  - diagnostic imaging equipment and servicing
  - radiation safety and radiographic technique charts
  - infection control
  - provision of diagnostic imaging services and reporting and recording of image findings
  - consumer information
  - patient identification and procedure matching

- medication management
  - diagnostic imaging protocols
  - consumer feedback and complaints.
- Names of the persons at the site who develop, approve, implement, maintain, and review these policies.<sup>2</sup>

It is recommended that WACHS sites utilise the Imaging Safety and Quality Manual produced for WACHS sites by the WACHS Central Office. Additional site specific information not included in this manual can be contained within a departmental manual (however named) maintained at site level, as applicable.

### **Standard 1.2 Registration and Licensing Standard**

Staff, contractors and any other clinicians providing services to the diagnostic imaging practice must have, and maintain, the appropriate and current registration and licence. Evidentiary documentation must be held at every site or be available upon request.<sup>3</sup>

### **Standard 1.3 Radiation Safety Standard**

Each WACHS site utilising ionising radiation must comply with WA state radiation legislation and any additional requirements of the [Radiological Council of WA](#).<sup>3</sup>

### **Standard 1.4 Equipment Inventory Standard**

Each site must maintain a current equipment inventory demonstrating that relevant equipment used to provide diagnostic imaging services is registered with Medicare Australia and complies with the specifications in the Medicare Benefits Schedule.<sup>3</sup>

### **Standard 1.5 Equipment Servicing Standard**

Records and service reports are to be maintained by each site including:

- date of service
- who provided the service and their relevant qualifications
- evidence that the service is undertaken in accordance with manufacturer's guidelines
- details and results of the service, and action taken in response to service findings (as required)
- date of next service.<sup>3</sup>

### **Standard 1.6 Infection Control Standard**

Each WACHS imaging site must mitigate the risk of transmission of infectious agents through adherence to requirements specified in infection control guidelines/policies produced by Commonwealth, State and local authorities and including:

- assessment and management of risks
- reporting, investigating, and responding to the transmission of infectious agents.<sup>3</sup>

## Part 2 – Pre Procedural Standards

### Standard 2.1 Provision of Service Standard

Diagnostic imaging procedures are only to be undertaken where there is an identified clinical need and upon receipt of a request form from:

- a medical practitioner
- a clinician/practitioner specified under the *Health Insurance Act*, including nurse practitioners
- an interpreting clinician permitted to self-determine a service under the *Health Insurance Act*.<sup>3</sup>

### Standard 2.2 Consumer Information Standard

WACHS Imaging sites are to ensure that prior to a diagnostic imaging service being undertaken:

- patients have access to relevant information about the procedure and advised of potential risks
- information about the patient's health status and risk factors are obtained and recorded
- consent has been obtained.<sup>3</sup>

### Standard 2.3 Patient Identification and Procedure Matching Standard

Each WACHS Imaging site must ensure the correct identification of all patients undergoing a diagnostic imaging service according to OD 0004 /06 [The Correct Patient, Correct Site and Correct Procedure Policy and Guidelines for WA Health Services](#) and adherence to appropriate local identification procedures. The identification process must include:

- using at least three unique patient identifiers to match a patient to their request or medical record through all stages of service delivery and transference of responsibility
- correctly matching patients with:
  - the intended imaging service
  - anatomical site
  - anatomical side
  - reporting, investigating, and responding to mismatch events.<sup>3</sup>

### Standard 2.4 Medication Management Standard

Each WACHS Imaging site must ensure medication risks are managed through adherence to:

- relevant Commonwealth and State government policy and procedures
- the WACHS [Medication Administration Policy](#) as applicable
- respective local site procedures and processes.

A management plan must also be in place which outlines:

- procedures for managing adverse reactions
- details of type and location of resuscitation equipment
- details of associated drugs held
- clinicians certified in Basic Life Support (BLS) or Advanced Life Support (ALS).<sup>3</sup>

### **Part 3 – Procedure Standards**

#### **Standard 3.1 Diagnostic Imaging Protocol Standard**

All WACHS sites providing imaging services must have documented protocols that describe the projections required for the acquisition of diagnostic quality images.<sup>3</sup>

#### **Standard 3.2 Technique Charts Standard**

A technique chart for each radiographic equipment item is to be located within each imaging site. All techniques are to be consistent with the As Low As Reasonably Achievable (ALARA) principle.<sup>3</sup>

### **Part 4 – Post Procedure Standards**

#### **Standard 4.1 Communicating with Requesting Practitioners Standard**

All WACHS imaging sites are to provide effective communication of results of a requested diagnostic imaging service by:

- providing timely, clear and concise written reports
- taking all reasonable steps to personally advise the requesting clinician (or other as appropriate) about urgent and/or unexpected findings
- responding to feedback and requests for clarification/advice about provided reports.<sup>3</sup>

#### **Standard 4.2 Results of Self Determined Services Standard**

All WACHS sites are to document information about the results of a self-determined service.<sup>3</sup>

#### **Standard 4.3 Consumer Feedback and Complaints Management Standard**

All WACHS Imaging sites must provide opportunities for, and respond to, feedback and complaints relating to diagnostic imaging service provision.<sup>3</sup>

### **Information Resources**

Detailed information and resources, including a range of templates for documentation required for inclusion in the Safety and Quality Manual are available on the Australian Government Department of Health [DIAS Information Resources](#) site. WACHS imaging sites are encouraged to utilise these templates to ensure capture of required documentation. More detailed information can be included, as applicable, in line with site specific requirements.

### Medical Imaging Accreditation Program

The Medical Imaging Accreditation Program (MIAP) is jointly administered by Royal Australian and New Zealand College of Radiologists (RANZCR) and the National Association of Testing Authorities (NATA), and enables accreditation of medical imaging services against the RANZCR Standards of Practice. Participation in the MIAP is voluntary; however it is recognised under, and satisfies, the requirements of the DIAS.<sup>4</sup>

WACHS sites with MIAP accreditation can seek recognition of the MIAP under the DIAS through application and provision of evidence to a DIAS accreditor. Accreditation under the DIAS will be granted until the date of expiration of the recognised MIAP accreditation. By this date, sites are required to provide the accreditor with evidence of renewal of MIAP accreditation, or obtain accreditation against DIAS standards.<sup>2</sup>

## 7. Standards of Practice

The Royal Australian and New Zealand College of Radiologists (RANZCR) publishes their [Standards of Practice for Diagnostic and Interventional Radiology](#), which is a structured consolidation of standards to support practice in Diagnostic and Interventional Radiology in Australia and New Zealand. The Standards represent the accreditation requirements underpinning the Medical Imaging Accreditation Program (MIAP), inform the development of standards that underpin the DIAS, and include quality management principles and quality assurance activities to support quality practice. RANZCR develops the standards primarily for use by Radiologists, but promote application of the Standards to all settings where diagnostic imaging is undertaken.

All WACHS Imaging sites should adhere to the RANZCR [Standards of Practice for Diagnostic and Interventional Radiology](#) as applicable to their practices, with the aim of achieving continuous quality improvement.<sup>5</sup>

## 8. Referral for Service and the Diagnostic Imaging Pathways

Circumstances outlining when a referral for a diagnostic imaging service is required, who may request certain services, and the form in which referrals must be, are outlined in the [Medicare Benefits Schedule](#).

Before requesting a diagnostic imaging service, the requesting clinician must consider the clinical relevance of the request, and determine that the service is necessary for the appropriate professional care of the patient.<sup>1</sup> In doing so, the requesting clinician is to:

- avoid unnecessary duplication of tests through:
  - awareness of any previous tests performed
  - ensuring the patient is aware of the importance of retaining previous images and providing them for review at the time of subsequent tests
  - awareness of the appropriate interval for serial imaging for a patient's circumstance

- ensure test results have the potential to affect patient management
- provide adequate clinical details to the imaging specialist
- ensure that imaging investigations are not a substitute for examining the patient
- maintain awareness of the risks involved with imaging services
- consult imaging specialists when appropriate
- consider non-ionising imaging modalities where possible and appropriate, particularly for younger patients.<sup>1</sup>

[Diagnostic Imaging Pathways](#) are an evidence and consensus-based education and decision support tool for clinicians providing guidance towards the most appropriate diagnostic examinations, in the correct sequence, for a wide range of clinical scenarios.

Requesting clinicians are (and are to be) encouraged to utilise the Diagnostic Imaging Pathways as a guide towards the identification of appropriate diagnostic imaging services for patients' requirements, noting that the information contained within the pathways is not a substitute for the use of due care and skill by the clinician.<sup>6</sup>

Responsibility for the adequacy of requesting details rests with the requesting clinician. Legislation provides that a request must be in writing.<sup>1</sup>

A written request must:

- adhere to OD0486/14 [WA Health Patient Identification Policy 2014](#)
- contain sufficient patient information to allow for adequate patient identification and procedure matching as outlined in DIAS standard 2.3, including as a minimum:
  - patient name
  - date of birth
  - the patient's unique medical records number (where applicable)
- if handwritten, be clearly and unambiguously labelled, legible and written in black ink
- contain sufficient information to clearly identify the item(s) of service requested
- be signed and dated by the requesting clinician
- contain the name and address, or name and provider number in respect of the place of practice, of the requesting clinician.

Refer to WACHS [Documentation Clinical Practice Standard](#) for generic documentation requirements.

## 9. Radiation Safety

Medical Radiation Safety in Western Australia is governed through the:

- [WA Radiation Act \(1975\)](#)
- [Radiation Safety \(General\) Regulations \(1983\)](#)
- [Registration and licensing conditions of the WA Radiological Council](#)

All WACHS sites are to adhere to the relevant requirements of WA Radiation Safety legislation and the WA Radiological Council. All WACHS sites are also to adhere to the requirements of [RPS14 – Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation](#), issued by ARPANSA.

RPS14 -1 Safety Guide - Radiation Protection in the Medical Applications of Ionizing Radiation and RPS14-2 Safety Guide - Radiation Protection in Nuclear Medicine provide practical guidance to stakeholders towards achieving compliance with RPS14 – Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation and represent best practice. All WACHS sites should follow the guidance provided by these documents wherever practicable.

### Registration

Registration is required for:

- all x-ray equipment
- non-exempt radioactive substances
- prescribed electronic products
- premises where such items are:
  - manufactured
  - used
  - stored, or
  - otherwise dealt with.<sup>7</sup>

### Registrant

The registrant is the person ultimately responsible for ensuring site compliance with the *WA Radiation Safety Act*, Regulations, and any conditions, restrictions, or limitations imposed by the Radiological Council. The identity of the Registrant is to be annotated in the site's Radiation Management Plan (see below).

Detailed responsibilities of the Registrant are outlined by the [WA Radiological Council](#).

### Radiation Safety Officer

The Registrant must appoint an appropriately trained person as Radiation Safety Officer (RSO), with nominations to be submitted to the Radiological Council for approval. Approved appointments are to be made in writing. The minimum responsibilities of this role are outlined by the [WA Radiological Council](#). While the RSO will undertake many of the duties assigned to the registrant by the Act and regulations, the registrant remains ultimately responsible. The RSO may also fill the role of the 'qualified expert' where appropriate.<sup>7</sup>



### Qualified Expert

A 'qualified expert' must be available to all WACHS sites to consult on optimisation of medical exposures, including clinical dosimetry and quality assurance, and to give advice on matters relating to radiation protection. The 'qualified expert' must have suitable qualifications and experience in radiological physics, with a radiology medical physicist meeting these requirements. WACHS sites which do not have a radiology medical physicist on staff, are to ensure access to a suitably qualified person. This may include liaison through larger sites, implementation of a contracted solution, or appointment of a suitably experienced radiologist or radiographer.<sup>8</sup>

### Operators

Medical Imaging Technologists (MITs) and Nuclear Medicine Imaging Technologists (NMITs) fulfil the role of 'operators' as defined by [RPS14 Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation](#), and are required to meet the defined responsibilities of the role.

### Licensing

Individuals using sources of radiation for imaging purposes must either:

- hold a current radiation use licence
- lawfully work under the direction and supervision of a licensee
- hold an individual exemption from licencing.<sup>7</sup>

Conditions of licencing and/or registration should be consulted for specific guidance on licencing requirements for individuals, as required.

### Radiation Protection Principles

There are three fundamental principles of radiation protection that are recommended by the [International Commission on Radiological Protection](#) (ICRP) and endorsed in Australian legislation, regulations and Codes of Practice. These principles are:

- justification
- optimisation
- dose limitation.<sup>8</sup>

It is a WACHS requirement that the principles of justification, optimisation, and dose limitation be adhered to at all times.

### Justification

The justification principle is common to all practices that involve exposure to ionizing radiation. This principle can be stated as follows:

- No practice involving exposures to radiation should be adopted unless it produces sufficient benefit to the exposed individuals or to society to offset the radiation detriment it causes.<sup>9</sup>
- Before a medical procedure involving exposure of an individual to ionizing radiation is approved or commenced, the procedure must be justified for that individual.<sup>8</sup>

- While radiologists are best placed to determine the risks of the requested imaging procedure, the referring doctor is often best placed to determine the potential benefits of the procedure for their patient, whom they have examined and are familiar with. Therefore, the process of justification is a joint responsibility of the radiologist and the referrer, and should be achieved through effective procedures, and communication and consultation between professionals.<sup>6</sup>

### **Justification of a Medical Radiation Procedure**

All WACHS imaging sites are to have established work procedures for the justification of all medical radiation procedures in accordance with RPS14 Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation. As a minimum, all sites must have generic written procedures/protocols for all examination types, for which MITs/NMITs are required to adhere to. This is also a requirement of DIAS Standard 3.1.<sup>8</sup>

### **Optimisation**

Radiation doses applied to patients, members of the public and occupationally exposed persons must be kept as low as reasonably achievable (ALARA).

Diagnostic equipment and methods must be selected to ensure that radiation administered to a patient is sufficient to provide the required information, yet is not greater than is necessary to provide that information.

Optimisation is achieved through:

- preliminary clinical consultation with the supervising Radiologist as required
- implementation of and adherence to detailed clinical examination protocols, technical parameters, and established work practices
- comprehensive training programs
- supervision and regular review of performance.

### **Dose Limitation**

All medical applications of ionizing radiation shall be managed in such a way that radiation doses to occupationally exposed persons and members of the public do not exceed the dose limits specified in the [Radiation Safety \(General\) Regulations \(1983\)](#).<sup>7</sup> Dose limits do not apply to the exposure of patients as part of their diagnosis or treatment, with such exposure managed through the principles of justification and optimisation.<sup>8</sup>

### **Dose Monitoring**

#### **Staff**

Not all employees who may receive an occupational exposure require personal monitoring. Each employee who is likely to receive an annual dose of more than 1mSv is to be provided with, and appropriately wear, an approved personal radiation monitoring device.<sup>7,8</sup> Details outlining radiation users requiring monitoring, types of monitoring, wearing periods, and approved personal radiation monitor providers are summarised by the [WA Radiological Council](#).

### **Patients**

Sufficient information on the procedure and exposure parameters that would allow the radiation dose (effective or equivalent as appropriate) to be estimated must be kept.<sup>8</sup> This information is readily recorded by some imaging systems. Alternatively, this is achievable through recording of examination details and exposure factors (or utilisation of established exposure chart), and adherence to established examination protocols.

### **Diagnostic Reference Level Program**

Each WACHS imaging site is to maintain a diagnostic reference level program to record pre-defined dose parameters for common radiological and nuclear medicine procedures.<sup>8</sup> The parameters for this program are to utilise the criteria outlined by the ARPANSA [National Diagnostic Reference Level \(NDRL\) Service](#) where such criteria exist.

The results of this program are to be submitted to the ARPANSA NDRL database where applicable, and results are to be regularly reviewed; with the aim of refining examination parameters and techniques to optimise examination radiation doses to patients. Liaison amongst sites over the details, results, and outcomes of the program is encouraged.

### **Protection of an Embryo or Foetus**

The relevant requirements of RPS14 Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation are to be adhered to by all WACHS sites in relation to the management of pregnant or potentially pregnant patients and staff. The amount of radiation administered to a pregnant patient must be such that the radiation dose to the embryo or foetus is minimised within the parameters of the procedure.<sup>8</sup>

ImagingWest developed a detailed policy for imaging pregnant patients and the minimum standards of this policy are adopted by all WACHS sites. If a member of staff learns they are pregnant, she should declare her pregnancy to the RSO. Any declaration of pregnancy is within the constructs of adhering to the regulatory requirements associated with radiation safety. Timing of the declaration is at the discretion of the worker.

Once a pregnancy has been declared, the foetus must be afforded the same level of protection as a member of the public. The effective dose limit for the foetus is 1mSv per year excluding the contribution from natural background radiation. In order for this to be monitored and managed, the onus is on the pregnant worker to declare her pregnancy.<sup>8</sup>

### **Review of Work Practices**

From a radiation safety perspective, it is not usually necessary for pregnant diagnostic radiographers to change their work practices. Any review of work practices is to occur in consultation with the pregnant worker and her medical clinician. The RSO is to provide advice to pregnant workers upon request.

## Personal Monitoring

Where concern exists in regard to radiation doses for pregnant staff, the personal radiation monitoring period could be reduced from 12 weeks to 6-8 weeks. This action can be considered for radiographers undertaking regular clinical practice in sites with high workloads or radiographers working with CT, angiography, or fluoroscopy. Any recorded elevated exposures are to be managed in accordance with incident investigation procedures.

## 10. Radiation Management Plan

All WACHS Imaging sites are required to maintain a Radiation Management Plan (RMP) to outline management and reporting arrangements for the site in accordance with relevant directives. Sites that generate radioactive waste are required to incorporate a radioactive waste management plan. As a minimum, the RMP is to incorporate the components of [Schedule A of RPS14 Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation](#). RMPs are to be regularly reviewed within a maximum three year period.

### Radiation Incidents

All WACHS sites are to report radiation safety incidents in accordance with relevant legislation, regulations, and requirements of the WA Radiological Council. Minor incidents and near misses not requiring formal regulatory reporting are to be managed in accordance with local site procedures as outlined in the respective site RMP and OSH policy.

### Medical Practitioner Use of Fluoroscopy

Regulation 38 of the [Radiation Safety \(General\) Regulations 1983](#) outlines the restrictions on the use of irradiating apparatus. Specifically, regulation 38 (5) applies to the use of fluoroscopic irradiating apparatus. These regulations also outline licences and registrations.

Licensed medical practitioners with a specialist qualification (other than a licensed Radiologist/trainee, licensed radiation Oncologist/trainee) must utilise the apparatus for a purpose relevant to the specialist qualifications, and in the presence of a radiographer.

Medical Practitioners training for specialist qualifications (other than in diagnostic imaging or radiation oncology) must:

- attend an approved course of training and pass an examination in radiation safety
- use the apparatus under the direction and general supervision of a licensed medical practitioner
- use the apparatus for a purpose relevant to the specialist qualifications in the presence of a radiographer.

Consultant medical specialists require a licence, or an exemption from licensing, to use fluoroscopy.

The radiographer is responsible for:

- the positioning and manipulation of the apparatus
- minimising patient and personnel radiation exposure
- maintaining the records required by the conditions of the registration.<sup>9,10</sup>

### **Remote practices**

Only suitably qualified and registered medical practitioners, certain dental clinicians (for specified services), and registered medical radiation clinicians (technologists) are able to perform diagnostic imaging procedures for diagnostic imaging services listed in the Medicare Benefits Schedule (MBS), excluding mammography.

Dental clinicians and medical radiation practitioners must be employed by, or under supervision of, a medical practitioner.<sup>1</sup>

This measure provides for exemptions for rural and remote areas. Exemptions apply for areas that fall into the outer regional, remote and very remote (RA3, RA4 or RA5) categories under the [Australian Standard Geographical Classification \(ASGC\)](#) system. They also apply for areas that fall within the inner regional (RA2) category that are also classified as RRMA 4 and RRMA 5.<sup>10,11</sup>

### **X-ray Operators**

An x-ray operator (XRO) is a health clinician (usually a nurse) who has been approved by the Radiological Council to undertake a limited range of basic radiographic examinations in remote and rural practices where a diagnostic radiography service would not otherwise be available.

X-ray operators are not issued a licence under the [Radiation Safety Act 1975](#), however they are issued with a certificate that permits them to operate mobile radiographic equipment for the purpose of human radiography of the chest, shoulders and extremities only. X-ray operators are only permitted to operate x-ray equipment at registered premises outside the metropolitan area where it is not always possible or practical to employ licensed medical imaging technologists. Refer to the [Role and Responsibility of Approved Radiographers and X-ray Operators Policy](#) for further information.

To become an x-ray operator, one must attend and pass a recognised (by the Radiological Council) x-ray operator course with ongoing authorisation and subject to passing a three yearly assessment undertaken by an approved radiographer.<sup>7</sup>

### **Magnetic Resonance Imaging (MRI) Safety**

The technology and equipment utilised to create MR images represents a potential risk to anyone entering the MRI room.

All WACHS imaging sites utilising MRI are to maintain detailed site specific safety procedures and documentation, which are to be incorporated into the Safety and Quality Manual. As a minimum, these procedures should adhere to the requirements outlined in the [RANZCR MRI Safety Guidelines](#).

## 11. Patient Monitoring

The health clinician undertaking the imaging service is to maintain sufficient observation of the patient throughout the course of the service, particularly for cases where image quality or dosimetry may be affected by patient movement.<sup>8</sup>

Imaging clinicians are to maintain physiological observations and monitoring for patients attending diagnostic imaging departments according to the [Clinical Observations and Assessments Clinical Practice Standard](#), particularly for those undergoing an imaging procedure. Specific requirements for each procedure type undertaken at individual sites are to be documented according to sites imaging policy or guidelines and WACHS [Documentation Clinical Practice Standard](#).

Consideration (where applicable) is to be given to:

- patient history and presence of comorbidities
- diagnosis and treatments for clinical conditions
- medications, psychosocial and cultural factors that could influence patient monitoring
- frequency and type of specific observations
- site requirements, patient education and consent
- any restrictions to interventions associated with advance health directives (AHD) or similar.

Refer to NSQHS Standard 6: Clinical Handover and NSQHS Standard 9: Recognising and responding to clinical deterioration in acute health care for further information.

## 12. Staffing Requirements

### Credentialing - Medical Practitioners

All WACHS medical practitioners involved with the referral for, and provision of, imaging services within WACHS imaging sites are to hold relevant professional qualifications and criteria required to perform their duties, and are to undergo the formal credentialing process in accordance with the WACHS [Medical Credentialing and Compliance Requirements Guideline](#). WACHS ensures all radiologists employed or subcontracted by external contractors are suitably credentialed.

### Credentialing – Nurse Practitioners

All WACHS nurse practitioners requesting imaging services within WACHS imaging sites are to hold relevant professional qualifications and are to undergo the formal credentialing process in accordance with WACHS policy. WACHS Nurse Practitioners are to work within their scope of practice.

### Radiologists

Radiologists are specialist medical officers who must hold:

- a current DRANZCR/FRANZCR certificate or equivalent specialist recognition
- all applicable Medical Board Registration requirements
- appropriate credentials and compliance with modality specific requirements for all imaging modalities/procedures performed
- Radiation Use licence with the Radiological Council of WA (where applicable).

### **Nuclear Medicine Specialist**

Nuclear Medicine Specialists are specialist medical officers who have completed the training requirements of the Joint Specialist Advisory Committee of the RACP and RANZCR, or equivalent, and who are eligible for Fellowship of the Australasian Association of Nuclear Medicine Specialists (AANMS). They must hold:

- a current FRACP or FRANZCR diploma ( $\pm$  FAANMS),
- all applicable medical board registration requirements,
- appropriate credentials and compliance with modality-specific requirements for all imaging modalities/procedures performed,
- radiation Licence with the Radiological Council of WA, which includes all radio-isotopes and activities to be used in clinical and/or research settings.

### **Medical Practitioners undergoing Training in Diagnostic Imaging / Radiation Oncology**

- Registration with the Medical Board of Australia
- Participating in a recognised diagnostic imaging training program
- Compliance with modality specific requirements for all imaging modalities / procedures performed
- Radiation Use licence with the Radiological Council of WA (where applicable).

### **Medical Imaging Technologists / Nuclear Medicine Imaging Technologists**

- Tertiary or other accepted qualification in Medical Imaging / Medical Radiations
- Registration with the Medical Radiation Practice Board and Australian Health Practitioners Regulation Agency
- Eligible for Statement of Accreditation through Australian Society of Medical Imaging and Radiation Therapy (ASMIRT) or Australian and New Zealand Society of Nuclear Medicine
- Radiation Use Licence with the Radiological Council of WA (as required).

### **Sonographers**

- Tertiary qualification in a related health/science field
- ASAR accredited post graduate qualification in sonography
- Registration with the Australian Accreditation Registry (ASAR) in the relevant field of sonography.

### **Medical Physicists**

- Certified in Radiology Physics.<sup>20</sup>

### **Nurses**

- Registration with the Nursing and Midwifery Board of Australia.<sup>20</sup>

### Technical Personnel

All WACHS imaging sites are to ensure that technical personnel servicing equipment are suitably qualified, and licensed with the Radiological Council for the applicable equipment type. Evidentiary documentation is to be maintained by the site.<sup>7</sup>

### X-ray operators

- Certificate of authorisation issued through the Radiological Council.

## 13. Pre-Procedure Key Points

- A valid request must be received prior to undertaking an imaging procedure (except in circumstances outlined in the MBS).
- Imaging procedures are only to be undertaken by a duly authorised person.
- Patient identification and procedure matching processes are to be undertaken.
- Patient pregnancy status (where applicable) must be determined and managed appropriately.
- Appropriate arrangements are to be in place to ensure correct patient preparation in time for examination.
- The patient is to receive information relating to the intended procedure, and give appropriate consent.
- All exams utilising radiation are to adhere to the radiation protection principles
- Patient privacy and dignity is to be maintained.
- The option of a chaperone should be offered, where appropriate to patient and clinician requirements.
- Opportunity should be made for an accredited interpreter, where appropriate to the patient's language or communication requirements.
- Reports are to be provided in an appropriate format and within acceptable time frames.
- Appropriate aseptic non touch technique (ANTT) must be carried out for all invasive procedures that are at risk of causing infection.<sup>12</sup>

### Hand Hygiene Considerations

Hand hygiene must be carried out (reference ACSQH / NHMRC Australian Guidelines, 2010):

- before and after touching the patient or undertaking a procedure
- after touching a patient's surroundings, a body substance exposure risk or removing gloves.

Staff are to comply with the specific requirements in alignment with the:

- WACHS [Infection Prevention and Control Policy](#).



### **Personal Protective Equipment Considerations**

Lead (or recognised equivalent) protective equipment is to be available to all personnel involved in:

- radiography with mobile radiography
- fluoroscopy
- interventional procedures.

Where there is no structural shielding and the operator has to remain in the room or area during general radiography (e.g. mobile radiography), the operator is to wear protective lead aprons and stand:

- at least two metres away from the x-ray tube, and
- outside the primary beam.

A person who is required to be present in a controlled area during an x-ray exposure is not to remain any closer to the patient or the x-ray tube than necessary. The operator is to ensure that any person who is required to remain in the room during the radiation exposure:

- wears protective clothing, or
- stands behind protective shields.

For staff required to remain close to the x-ray tube during irradiation, such as angiography, lead gowns and thyroid collars must be worn. Additional protective devices such as gloves, and glasses are to be utilised at times of greater risk of exposure.<sup>8,14</sup>

### **Handling of Radioisotopes**

While in the radioisotope handling area, staff handling radioisotopes are to wear gloves and a protective lab coat or gown. Additional requirements are to be outlined in local site procedures.

### **Theatre and Emergency Staff**

Lead protective devices are to be worn by all attending theatre / emergency staff while irradiating equipment is being used. For situations where lead gowns are not routinely worn, such as for laparoscopic cholecystograms, mobile protective shields are to be used. Where neither lead gowns nor protective shields are available or practical, staff are to leave the operating theatre during times of irradiation.

### **Protective Devices for the Patient**

Protection is to be provided to patients for the protection of lead sensitive organs such as gonads, breast, thyroid, lens of the eye where such organs are at risk of increased exposure. Shielding should not be used if such use will obscure the areas of interest.<sup>14</sup>

### Specifications

The wearing of lead gowns by staff and patients is to be undertaken with consideration for the protection the gowns provide and also the manual handling issues associated with the use of the gowns for extended periods. The correct size, weight, and design of the lead gown should be considered for the purpose required.

Lead gown design is to be in line with minimum standards as outlined by RPS14-1 Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation. Open back designs are not recommended, whilst a separate skirt/vest design is preferred. Lead gowns are required to have a minimum thickness of 0.25mm lead equivalence at 150kVp, though 0.35mm-0.5mm lead equivalence is required for use in interventional procedures. Lead equivalence for thyroid shields/collars is the same as for lead gowns.<sup>14</sup>

### Item Identification and Labelling

Each protective lead device is to be labelled with a unique identification number within a facility. The identifier is to be located on the item and is not to be removed at any time.

Each protective lead device is to be labelled in accordance with the requirements of AS/NZS 4543.3:2000.<sup>15</sup>

Where the lead equivalence value of the back and front sections of a lead gown are different this must be stated on the label with the respective lead equivalences noted.

### Storage / Maintenance

In order to prevent damage such as cracking or degeneration of the protective material, all aprons are to be hung on suitable hangers when not in use. It is the responsibility of the wearer (or operator if the wearer is a patient or visitor) of the apron to ensure that it has been properly stored after each use. Gowns that cannot be hung are to be stored flat; not folded.

### Lead Protection Testing

Lead protective devices are to be examined for integrity under fluoroscopy annually wherever practicable. Where fluoroscopy is not readily available, testing can be undertaken through radiography. All WACHS sites are to follow the applicable guidance provided within RPS14-1 and [RPS14-2. Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation](#).

ImagingWest co-ordinated the development of a lead gown database available on HealthPoint. This database may be utilised by WACHS sites for auditing and traceability of lead gown testing.

## 14. Procedure

### Professional Supervision

All components of diagnostic imaging examinations are to be undertaken under the professional supervision of a Radiologist or Nuclear Medicine Specialist as defined by RANZCR Standards of Practice either through the adherence to authorised clinical protocols or in accordance with specific direction provided on a case-by-case basis.<sup>5</sup>

### **Contrast media management**

Each imaging site which utilises contrast media is to maintain an established contrast media management plan in accordance with [RANZCR Standards of Practice](#), [RANZCR Iodinated Contrast Media Guidelines - 2016 Edition](#).

### **Written Report Guidelines**

Radiologists primarily communicate their interpretation of imaging findings through the written diagnostic imaging report, the quality of which directly impacts upon the safety and appropriateness of patient management. All WACHS imaging sites are to produce written diagnostic imaging reports in accordance with the [RANZCR Radiology Written Report Guidelines](#), which provide advice to radiologists and diagnostic imaging trainees about best practice in relation to the written report.

All reports are to include where possible / appropriate:

- technique or procedural description including date and time of examination
- patient demographics
- name of reporting radiologist(s) or nuclear medicine specialist
- name of referring practitioner and any individuals nominated to receive the report
- history / clinical information
- examination quality as appropriate
- comparison with previous studies
- findings including details of anyone to whom the results have been actively communicated prior to the authorisation of the report
- report date and time
- diagnosis / differential diagnosis
- conclusion including any recommendations
- discrepancy documentation
- name of sonographer <sup>1,16</sup>

### **Reporting timeframes**

All WACHS sites and Imaging staff are to ensure that examination reports are provided to the referring clinician within a clinically appropriate timeframe, dictated by allocating appropriate priority levels for examination reporting to enable the most appropriate clinical decisions. Priority reporting levels may be influenced by various factors such as imaging modality and clinical urgency.

All reasonable steps are to be undertaken to advise the referring clinician of urgent or unexpected findings. Verbal notification by a radiologist of results are to be followed with a formal written report as soon as practicable. Radiologists are available for consultation 24/7 for urgent clinical situations.

For an imaging examination to have any impact upon patient management, it should be available to the referring doctor within 24 hours.<sup>17</sup> Non-urgent outpatient examinations may be reported over a greater timeframe as dictated by a reduced clinical urgency.

## 15. Equipment Considerations

### Capital Sensitivity

The [Capital Sensitivity Measure for Diagnostic Imaging Equipment](#), outlined in the Health Insurance (Diagnostic Imaging Services Table) Regulation is intended to improve the quality of diagnostic imaging services through encouraging providers to upgrade and replace aged equipment. Equipment age criteria affect the determination of the Medicare Benefit Schedule fee payable for various diagnostic imaging services where a reduced schedule fee is payable for equipment over a determined age. Exemptions to the capital sensitivity requirement are automatically provided to sites located in Remoteness Area categories.<sup>18</sup> Imaging equipment at many WACHS sites is exempt from standard Capital Sensitivity timeframes due to applicable remoteness classifications however WACHS endeavours to maintain the high standards of contemporary imaging equipment at all sites.

### Compliance testing

X-ray equipment cannot be used for human diagnosis unless it has a current:

- certificate of compliance
- certificate of conditional compliance
- exemption certificate, or
- notice of non-compliance with permission for use during rectification.

All x-ray equipment for use in diagnostic radiography and fluoroscopy on humans must be tested for compliance with regulations and performance criteria outlined by the Radiological Council. Equipment must be tested at designated intervals. Equipment compliance testing can only be conducted by a licensed tester.

Application	Testing Interval
Mammography	12 Months
Fixed or mobile Fluoroscopy (C or U Arm)	12 months
Dental Cone Beam CT*	12 months
Other fluoroscopy	24 months
Radiography	24 months
CT	24 months
Dental	36 months

\* These are relatively new and are not yet properly documented in the compliance testing program <sup>7</sup>

## 16. Clinical Communication

### Clinical Handover

Information exchange is to adhere to the Department of Health [Clinical Handover Policy](#) using the iSoBAR framework.

### Critical Information

Critical information, concerns or risks about a consumer are communicated in a timely manner to clinicians who can make decisions about the care.

### Documentation

Failure to accurately and legibly record and understand what is recorded in patient health records contribute to a decrease in the quality and safety of patient care. Refer to the WACHS [Documentation Clinical Practice Standard](#) for generic documentation requirements.

Additionally, all WACHS imaging sites are to maintain the following records:

- Safety and Quality Manual
- Radiation Management Plan
- Equipment Inventory
- Equipment Servicing Records
- Patient Radiation Doses
- Diagnostic Reference Level Program
- Incident records.

Failure to accurately and legibly record and understand what is recorded in patient health records contribute to a decrease in the quality and safety of patient care.

### Retaining Records

All images and documentation acquired through imaging service provision are to be kept according to [RANZCR Written report guidelines](#)<sup>5</sup>

WACHS sites performing diagnostic imaging services must keep records of services provided in a manner that facilitates retrieval on the basis of the patient's name and date of service.

Requests for R-type diagnostic imaging services, as defined by the MBS, in response to a written request, must retain that request for a period of 18 months from the date of service provision.<sup>1</sup>

Failure to accurately and legibly record and understand what is recorded in patient health records contribute to a decrease in the quality and safety of patient care.

Refer to WACHS [Documentation Clinical Practice Standard](#).

## 17. Compliance Monitoring

The DIAS and MIAP accreditation processes described above comprise a 2 yearly cycle of evaluation, audit and feedback mechanisms to ensure site compliance with contemporary imaging standards .

Failure to comply with this policy may constitute a breach of the WA Health Code of Conduct (Code). The Code is part of the [Employment Policy Framework](#) issued pursuant to section 26 of the [Health Services Act 2016](#) (HSA) and is binding on all WACHS staff which for this purpose includes trainees, students, volunteers, researchers, contractors for service (including all visiting health professionals and agency staff) and persons delivering training or education within WACHS.

WACHS staff are reminded that compliance with all policies is mandatory.

## 18. Relevant Legislation

(Accessible via: Government of Western Australia ([State Law Publisher](#) or [ComLaw](#)))

- [ARPANS Act 1998](#)
- [ARPANS Regulations 1999](#)
- *Health Insurance Act 1973*
- Health Insurance Regulations 1975
- Health Insurance (Diagnostic Imaging Services Table) Regulations 2011, as amended.
- *Health Practitioner Regulation National Law (WA) Act 2010*
- *Occupational Safety and Health Act 1984*
- Occupational Safety and Health Regulations 1996
- *Pharmacy Act 1964*
- *Poisons Act 1964*
- Poisons Regulations 1965
- *Privacy Act 1988*
- *Public Sector Management Act 1994*
- *Radiation Safety Act 1975*
- Radiation Safety (General) Regulations (1983)

## 19. Relevant Standards

[National Safety and Quality Health Services \(NSQHS\) Standards](#), Standard 1 Governance 1.7.1

## 20. Related WA Health Policies

- [Clinical Deterioration Policy](#)
- [Clinical and Related Waste Management Policy](#)
- [Clinical Handover Policy](#)
- [Clinical Incident Management Policy](#)
- [WA Health Consent to Treatment Policy](#)
- [Correct Patient, Correct Site and Correct Procedure Policy and Guideline for WA Health Services \(2<sup>nd</sup> Edition\)](#)
- [Implementation of the Australian Health Service Safety and Quality Accreditation Scheme and the National Safety and Quality Health Service Standards in Western Australia](#)
- [The Policy for Credentialling and Scope of Clinical Practice for Medical Practitioners 2<sup>nd</sup> Edition 2009](#)
- [Western Australian Patient Identification Policy 2014](#)

## 21. Relevant WACHS documents

WACHS [Inter-hospital Clinical Handover Form Procedure](#)  
[MR184 WACHS Inter-hospital Clinical Handover Form](#)

## 22. WA Health Policy Framework

[Clinical Governance, Safety and Quality Policy Framework](#)

## 23. Acknowledgement

Acknowledgment is made of the previous SMHS / WACHS site endorsed work used to compile this Imaging Clinical Practice Standard.

## 24. References

1. Australia Government Department of Health and Ageing. Medicare Benefits Schedule Book Category 5 - Operating from 01 March 2014. Canberra, ACT: Australia Department of Health and Ageing; 2013: [https://www.health.gov.au/internet/mbsonline/publishing.nsf/Content/007A76CBC3437BF7CA257CCF00051C2E/\\$File/201403-Cat5.pdf](https://www.health.gov.au/internet/mbsonline/publishing.nsf/Content/007A76CBC3437BF7CA257CCF00051C2E/$File/201403-Cat5.pdf) Accessed 06/07/2017.
2. Australia Government Department of Health. About the Diagnostic Imaging Accreditation Scheme (DIAS) and the Medical Imaging Accreditation Program (MIAP). <http://www.health.gov.au/internet/main/publishing.nsf/Content/medical-imaging-accreditation-program-fact-sheet+> Accessed 06/07/2017.
3. Australia Government Department of Health. DIAS Practice Accreditation Standards (from 1 January 2016) <http://www.health.gov.au/internet/main/publishing.nsf/Content/di-DIAS-Prac-Accred-Standards-1-January-2016> Accessed 06/07/2017.

4. Royal Australian and New Zealand College of Radiologists. RANZCR/NATA Medical Imaging Accreditation Program. n.d.; <http://www.ranzcr.edu.au/quality-a-safety/radiology/practice-accreditation/ranzcrnata-medical-imaging-accreditation-program> Accessed 06/07/2017.
5. Royal Australian and New Zealand College of Radiologists. Standards of Practice for Diagnostic and Interventional Radiology Version 10 - 2017. <http://www.ranzcr.edu.au/quality-a-safety/radiology/standards-of-practice>. Accessed 06/07/2017.
6. Western Australia Department of Health. Diagnostic Imaging Pathways: A Clinical Decision Support Tool and Educational Resource for Diagnostic Imaging. 2014; <http://www.imagingpathways.health.wa.gov.au/>. Accessed 06/07/2017.
7. Government of Western Australia. Radiological council. 2012; <http://www.radiologicalcouncil.wa.gov.au/>. Accessed 06/07/2017.
8. Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). Code of Practice: Radiation Protection in the Medical Applications of Ionizing Radiation. *Radiation Protection Series Publication No. 14*. <https://www.arpansa.gov.au/sites/g/files/net3086/f/legacy/pubs/rps/rps14.pdf> Accessed 06/07/2017.
9. Department FHaHSR. Radiation fluoroscopy regulations. *Radiology Department Medical Officers Manual*. 3rd ed. Fremantle, WA: Fremantle Hospital and Health Service; 2012.
10. Government of Western Australia. Radiation safety (general) regulations 1983 - reg 38. *Western Australian Consolidated Regulations 1983*; [http://www.austlii.edu.au/au/legis/wa/consol\\_reg/rsr1983337/s38.html](http://www.austlii.edu.au/au/legis/wa/consol_reg/rsr1983337/s38.html). Accessed 06/07/2017.
11. Australia Department of Health and Ageing. Strengthening the Provision of Quality Diagnostic Radiology Services - fact sheet. Canberra, ACT: Australia Department of Health and Ageing; 2013: [http://www.health.gov.au/internet/main/publishing.nsf/Content/623A06788C3D730FCA257BF0001AFD86/\\$File/Strengthening%20the%20Provision%20of%20Quality%20Diagnostic%20Radiology%20Services%20Fact%20Sheet.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/623A06788C3D730FCA257BF0001AFD86/$File/Strengthening%20the%20Provision%20of%20Quality%20Diagnostic%20Radiology%20Services%20Fact%20Sheet.pdf). Accessed 06/07/2017.
12. Australian Commission for Safety and Quality in Health Care. Australian guidelines for the prevention and control of infection in healthcare. Canberra, ACT: National Health and Medical Research Council; 2010: [http://www.nhmrc.gov.au/files\\_nhmrc/publications/attachments/cd33\\_infection\\_control\\_healthcare\\_typo\\_fix\\_4.2.4\\_140616.pdf](http://www.nhmrc.gov.au/files_nhmrc/publications/attachments/cd33_infection_control_healthcare_typo_fix_4.2.4_140616.pdf). Accessed 06/07/2017.
13. National Health and Medical Research Council. When should hand hygiene be performed? 2014; <http://www.nhmrc.gov.au/book/australian-guidelines-prevention-and-control-infection-healthcare-2010/b1-1-2-when-should-hand->. Accessed 06/07/2017.
14. Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). Safety Guide: Radiation Protection in Diagnostic and Interventional Radiology. *Radiation Protection Series No. 14.1*. [https://www.arpansa.gov.au/sites/g/files/net3086/f/legacy/pubs/rps/rps14\\_1.pdf](https://www.arpansa.gov.au/sites/g/files/net3086/f/legacy/pubs/rps/rps14_1.pdf) Accessed 06/07/2017.



15. Standards Australia, Standards New Zealand. AS/NZS 4543.3:2000 - Protective devices against diagnostic medical x-radiation. Part 3: Protective clothing and protective devices for gonads. Strathfield, NSW/Wellington, NZ: Standards Australia/Standards New Zealand; 2000.
16. Royal Australian and New Zealand College of Radiologists. Clinical Radiology Written Report Guidelines, Version 6.0: <https://www.ranzcr.com/search/clinical-radiology-written-report-guidelines> Accessed 06/07/2017.
17. Australian Council on Healthcare Standards. Clinical indicator summary guide 2012. Ultimo, NSW: Australian Council on Healthcare Standards; 2012: <http://www.health.qld.gov.au/hic/healthindicatorset/achs-guide-2012.pdf>.
18. Australia Government Department of Health. About the Capital Sensitivity initiative and guaranteeing quality diagnostic imaging services. <http://www.health.gov.au/capitalsensitivity>. Accessed 06/07/2018

## 25. Definitions

<b>Carer</b>	Carers provide unpaid care and support to family members and friends who have a disability, mental illness, chronic condition, terminal illness, an alcohol or other drug issue or who are frail aged (Carers Australia, 2015).
<b>Consumer</b>	A person who uses, or may potentially use, health services. Depending on the nature of the health service organisation, this person may be referred to as a patient, a client, a consumer, a customer or some other term. Consumers also include families, carers, friends and other support people, as well as representatives of consumer groups.
<b>Direct supervision</b>	Direct supervision is considered to be in the company of a registered nurse (RN) or medical practitioner or visually via an emergency tele-health service.

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