Imaging Clinical Practice Standard

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. Procedural Information

Refer to:

- Section 7:Pre-Procedure Key Points
- Section 10: Procedure
- Section 11: Safety and Monitoring
- Appendix A: Example of clinical conditions suitable for critical test result* notifications

5. General Information

Diagnostic imaging is a generic term which includes fluoroscopy, ultrasound, computed tomography (CT), nuclear medicine, radiography, magnetic resonance imaging (MRI), positron emission tomography (PET), 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.

Medical Imaging service provision within WACHS varies depending on the modalities available at each imaging site. All Nuclear medicine services are provided by external providers and are only available in some regional locations.
The WACHS Clinical Director of Radiology can be contacted for concerns regarding radiology clinical service provision by emailing WACHSDirectorRadiology@health.wa.gov.au

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.[1]

5.1 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 MP 0134/20 National Safety and Quality Health Service Standards Accreditation Policy.

WACHS sites are assessed and accredited against the Royal Australian and New Zealand College of Radiologists (RANZCR) Standards of Practice for Clinical 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).[1]

5.1.1 Diagnostic Imaging Accreditation Scheme[2]

The DIAS is divided into four parts:
Part 1 – Organisational Standards
Part 2 – Pre-procedure Standards
Part 3 – Procedure Standards
Part 4 – Post Procedure Standards

Part 1 – Organisational Standards

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
  - radiation safety and optimised radiographic technique charts
  - diagnostic imaging equipment and servicing
  - infection control
  - provision of diagnostic imaging services and reporting and recording of image findings
  - consumer consent and 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.[2]

It is recommended that WACHS sites utilise the Medical Imaging 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.

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.

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 Services Australia and complies with specifications in the Health Insurance Act 1973 and the Health Insurance Regulations 2018.

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 qualification/s

- 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.

Standard 1.6 Healthcare Associated Infection 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:

- Identification, assessment and management of risks
- Reporting, investigating, and responding to incidents arising from the transmission of infectious agents.
- Ensuring consumer-specific information on the management and reduction of healthcare associated infections is available at the point of care.

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*.

Standard 2.2 Consumer Consent and Information Standard

WACHS Imaging sites are to ensure that prior to a diagnostic imaging service being undertaken, except in cases of emergency:

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

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 WACHS Patient Identification Policy 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.

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 Prescribing and Administration Policy as applicable
- the Peripheral Intravenous Cannulae (PIVC) Management Clinical Practice Standard, in particular Appendix 5: Complication - Extravasation
- 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).

Where a practice performs examinations using contrast, a documented protocol must be in place which ensures the appropriate use and administration of contrast.

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 (including contrast injection requirements as appropriate) for the acquisition of diagnostic quality images.[2]

Standard 3.2 Optimised Radiation 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.

Part 4 – Post Procedure Standards

Standard 4.1 Communicating Results and Reports Standard

All radiologists reporting WACHS imaging including externally contracted radiology providers are to provide effective communication of results of a requested diagnostic imaging service by:

- providing timely, clear and concise written reports
- responding to feedback and requests for clarification/advice about provided reports.

In addition, all radiologists must be aware of their obligations to communicate urgent and unexpected findings directly with the referring clinician or treating team and in the event that they are unable to contact they will co-ordinate appropriate care.

Documentation of communications with the referring clinician/team must be included in the written patient report.

All external radiology providers are required to provide access to their significant and unexpected findings policies upon request.

Standard 4.2 Findings of Self Determined Services Standard

All WACHS sites are to document information about the results of a self-determined service.

Standard 4.3 Consumer and Stakeholder 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.

5.1.2 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.

5.1.3 Medical Imaging Accreditation Program[3]

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.

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.[2]

5.2 Standards of Practice[4]

The Royal Australian and New Zealand College of Radiologists (RANZCR) publishes their Standards of Practice for Clinical 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 Clinical Radiology as applicable to their practices, with the aim of achieving continuous quality improvement.

5.2.1 Imaging Report Communication

All WACHS sites will have a protocol outlining the steps for notification of urgent and significant unexpected findings including critical test results. A critical test result

is defined as 'any result or finding that may be considered life threatening or that could result in severe morbidity and requires urgent or emergent clinical attention'. This protocol will ensure that:

1. the reporting radiologist uses all reasonable endeavours to communicate directly with the referrer or an appropriate representative who will be providing clinical follow-up;
2. a record of actual or attempted direct communication is maintained by the Site; and
3. the reporting radiologist co-ordinates appropriate care for the patient if they are unable to communicate such findings to the referring clinician.[5]

Appendix A contains a list of examples of critical conditions that require use of the Urgent and Unexpected Significant Findings Procedure. (Note this list is not exhaustive.)

5.3 Referral for Service, Appropriateness 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.[1] 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.

5.3.1 Appropriateness of imaging referrals

It is the responsibility of the person ordering the investigation to ensure that:

- the investigation is clinically relevant and appropriate, and
- the requested investigation is clearly documented in the medical records.

Particular consideration should be given to the paediatric patient population when considering the appropriateness of the procedure requested.

Medical Imaging departments should be aware that other hospital departments such as the emergency department are routinely conducting audits on the

appropriateness of the medical imaging referrals being submitted from their clinical teams.

RANZCR education modules for appropriate imaging referrals are freely available to health professionals via the RANZCR learning portal. For more information on accessing the modules contact the RANZCR Quality and Standards team.

Before undertaking a requested diagnostic imaging procedure, the clinical radiologist shall consider the appropriateness of the procedure requested, based on the clinical information provided for the diagnosis of the patient's condition. This task may be delegated to suitably qualified members of the diagnostic imaging team (e.g. sonographer, medical imaging technologist) under the supervision of, and with the agreement of, the clinical radiologist.

Real time consultation is available between the medical imaging technologist or referring clinical team and the reporting radiologist that includes professional advice regarding the appropriateness of imaging referrals. This includes the provision of advice to the technologist regarding imaging in line with protocols and appropriate use of imaging. Allied health professionals should consult with the supervising clinical radiologist, whether on site or remote, if the circumstances fall outside of normal protocol or there are any clinical concerns.

If it is determined from the clinical information provided in a request that a different diagnostic imaging examination or modality would be more appropriate, or an additional examination is necessary, the appropriate test/s shall be performed and all reasonable steps shall be taken to contact the requesting practitioner before providing the substituted or additional examination or modality.

5.3.2 Diagnostic Imaging Pathways[6]

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.

Responsibility for the adequacy of requesting details rests with the requesting clinician. Legislation provides that a request must be in writing.[1]

A written request must:

- adhere to WACHS Patient Identification Policy
- 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 record 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.

5.3.3 Prioritisation of Imaging

WACHS medical imaging departments are open during business hours Monday – Friday and also available for emergency and urgent clinical presentations after hours and public holidays. Prioritisation for medical imaging services will be clinically determined as per the classification below (most to least urgent):

Level 1	High level of clinical urgency (i.e. patient acuity)
Level 2	WEAT targets (i.e. 4 hour rule patients)
Level 3	Acute care inpatients
Level 4	Requirement for Imaging to occur as an inpatient prior to discharge
Level 5	All other clinical requests for imaging

5.4 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 RPS C-5 Code for Radiation Protection in Medical Exposure (2019). RMPs are to be regularly reviewed within a maximum three year period.

5.4.1 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.

5.4.2 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.[11]

5.4.3 X-ray Operators

An x-ray operator (XRO) is a health clinician (commonly 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. Additional views may be permitted in the case of a medical emergency when, in the opinion of the referring medical practitioner, such views are considered essential for the immediate medical care of the patient.

XROs must consult with their Approved Radiographer (or a supervising radiographer) for authorisation and guidance in such circumstances. 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.[7]

5.4.4 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.

6. 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 WA Health Information Management Policy Framework and Patient Information Retention and Disposal Schedule v4 2014

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.

Information regarding appropriate scanning of request forms into electronic format is available from the WACHS Medical Imaging intranet.

Requests for R-type diagnostic imaging services, as defined by the Medicare Benefits Schedule (MBS), in response to a written request, must retain that request for a period of 18 months from the date of service provision.[1]

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.

7. 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. Please refer to local nursing manuals for information relating to patient preparation requirements prior to specific examinations or contact the medical imaging department.
- 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.
- Appropriate aseptic technique must be carried out for all invasive procedures that are at risk of causing infection.[12] Refer to WACHS Aseptic Technique Policy.

7.1 Hand Hygiene Considerations[12]

Hand hygiene must be carried out:
- before and after touching the patient or undertaking a procedure
- after touching a patient's surroundings or a body substance exposure risk
- before putting on gloves and after removing gloves.

Staff are to comply with the specific requirements in alignment with the:
- WACHS Infection Prevention and Control Policy
- WACHS Hand Hygiene Policy

7.2 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.[13]

Refer to WACHS Personal Protective Equipment (PPE) Procedure.

7.3 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.

7.4 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 cholecystectomies, 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.

7.5 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.[14]

7.6 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 Safety Guide for Radiation Protection in Diagnostic and Interventional Radiology. 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.[14]

7.7 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.[14.] 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.

7.8 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.

7.9 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 sites maintain a record of the results of testing for quality assurance purposes. All WACHS sites are to follow the applicable regulatory requirements provided within RPS C-5 Code for Radiation Protection in Medical Exposure and its associated Safety Guides RPS14-1 and RPS14-2.

8. 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 the WACHS Credentialing for Nurse Practitioners and Endorsed Privately Practicing Midwives 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 (± 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.

Nurses

Registration with the Nursing and Midwifery Board of Australia.

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.[7]

X-ray operators

Certificate of authorisation issued through the Radiological Council.

9. Equipment Considerations

9.1 Capital Sensitivity[17]

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.[17] 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.

9.2 Compliance testing

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

- certificate of compliance, or
- certificate of conditional compliance, or
- 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
Cone Beam CT	12 months
Other fluoroscopy	24 months
Radiography	24 months
CT	24 months
Dental	36 months

The responsibility for ensuring their x-ray equipment remains compliant lies with the Registrant. Registrants must retain a copy of the compliance documentation for all equipment in their possession.[18]

10. Procedure

10.1 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.[4]

10.2 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 – v2.3 March 2018 and RANZCR Guideline on the use of Gadolinium-containing MRI Contrast Agents in Patients with Renal Impairment v3 November 2019.

Contrast questionnaires found on the reverse of the sites Medical Imaging Request Forms are designed to identify individuals at increased risk of adverse reactions to contrast media and other contra-indications to administration of intravenous contrast media.

10.3 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 Clinical Radiology Written Report Guidelines v7 November 2020, 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
- address specific clinical questions asked by the referrer
- diagnosis / differential diagnosis
- conclusion including any recommendations
- discrepancy documentation
- name of sonographer[1,15]

10.4 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.[16] Non-urgent outpatient examinations may be reported over a greater timeframe as dictated by a reduced clinical urgency.

Reporting radiologists can be contacted at any time to discuss imaging findings with referring clinicians.

10.5 Results Management

Clinical governance for all clinical investigations, both inpatient and outpatient remains with the current treating Consultant.

Systems should be present to ensure that urgent or clinically significant findings are communicated to the clinical team in a clinically appropriate time.

Ideally, systems for results notification and acknowledgement should also be present.

10.6 Report Discrepancy – Documentation and Communication[15]

Any amendments made to the initial finalised report that could alter diagnosis or management needs to be communicated and documented. The clinical radiologist noting the discrepancy will need to ensure the following:

- Practitioners involved in the care of the patient are made aware of the discrepancy
- The discrepancy is documented as an addendum to the original written report along with addendum date and time, details of the notification process, and the name of the radiologist making the addendum. The original text of a final signed/authorised report should never be altered.
- Where possible the reviewing clinical radiologist should also inform the original reporting radiologist about the discrepancy.
- A Datix CIMS (Clinical Incident Monitoring System) form will need to be submitted in the above results in an adverse event or significant clinical incident. In addition, communication can be sent to the Clinical Director of Radiology (WACHSRadiologyfeedback@health.wa.gov.au) for further advice and consultation if required.

11. Safety and Monitoring

11.1 Radiation Safety

Medical Radiation Safety in Western Australia is governed through the:

- Radiation Safety Act 1975 (WA)
- 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 RPS C-1 (Rev.1) Code for Radiation Protection in Planned Exposure Situations (2020), and RPS C-5 Code for Radiation Protection in Medical Exposure (2019) issued by ARPANSA.

RPS14.1 Safety Guide for Radiation Protection in Diagnostic and Interventional Radiology and RPS14.2 Safety Guide for Radiation Protection in Nuclear Medicine provide practical guidance to stakeholders towards achieving compliance with RPS C-5 Code for Radiation Protection in Medical Exposure (2019) and represent best practice. All WACHS sites should follow the guidance provided by these documents wherever practicable.

The WACHS Medical Imaging – Radiation Safety Management Plan describes the management of radiation safety at WACHS sites. It provides policy and procedural information, roles and responsibilities and lists the regulatory publications and guidelines applicable to radiation safety across WACHS.

11.1.1 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.[7] For detailed information: http://www.radiologicalcouncil.wa.gov.au/Pages/Registration.html

11.1.2 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 and can be found here:
http://www.radiologicalcouncil.wa.gov.au/PDF/RegistrantResponsibilities.pdf

11.1.3 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. More detailed information can be found here:
http://www.radiologicalcouncil.wa.gov.au/PDF/RSOResponsibilities.pdf

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.[7]

11.1.4 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.[7]

11.1.5 Operators

Medical Imaging Technologists (MITs) and Nuclear Medicine Imaging Technologists (NMITs) fulfil the role of 'operators' as defined RPS C-5 Code for Radiation Protection in Medical Exposure (2019), and are required to meet the defined responsibilities of the role.

11.1.6 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.[7]

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

11.1.7 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.[8]

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

11.1.8 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.[8]
- Before a medical procedure involving exposure of an individual to ionizing radiation is approved or commenced, the procedure must be justified for that individual.[8]
- 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.[9]

11.1.9 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 RPS C-5 Code for Radiation Protection in Medical Exposure (2019). 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.

11.1.10 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.

11.1.11 Dose Limitation

All medical applications of ionising 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).[7]

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.[8]

11.1.12 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.[10] Details outlining radiation users requiring monitoring, types of monitoring, wearing periods, and approved personal radiation monitor providers are summarised by the WA Radiological Council. The employer of a radiation worker must keep a record of the doses received by each designated radiation worker and they shall supply an individual with their dose records on request.[11]

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.[8] 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

Radiation doses administered to a patient for diagnostic purposes must be periodically compared with national diagnostic reference levels (DRLs) for procedures for which DRLs have been established in Australia (e.g. CT examinations). DRLs should be further evaluated with the view to establishing practice reference levels (PRLs), as part of departmental continuous quality improvement and accreditation activities.

If DRLs are consistently exceeded, then the procedure/protocol should be reviewed to determine whether radiation protection has been optimised.

Each WACHS site Senior/Chief Medical Imaging Technologist is responsible for establishing a program to ensure DRLs/PRLs are monitored and appropriately documented for common radiological and nuclear medicine procedures.[8] 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 Fetus

The relevant requirements of RPS C-5 Code for Radiation Protection in Medical Exposure (2019) 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 fetus is minimised within the parameters of the procedure.[8]

The WACHS Imaging Pregnant Patients Procedure is 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 fetus must be afforded the same level of protection as a member of the public. The effective dose limit for the fetus 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.[8]

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.

11.2 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.[8]

Imaging clinicians are to maintain physiological observations and monitoring for patients attending diagnostic imaging departments according to the WACHS Clinical Observations and Assessments Clinical Practice Standard (physiological [vital signs], neurovascular, neurological and fluid balance) 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), Goals of Patient Care (GoPC) or similar.

Refer to NSQHSS Communicating for Safety Standard and Recognising and Responding to Acute Deterioration Standard for further information.

12. 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 document may constitute a breach of the WA Health system Code of Conduct (Code). The Code is part of the Integrity Policy Framework issued pursuant to section 26 of the *Health Services Act 2016* (WA) 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.

13. Records Management

Records Management Policy
Health Record Management Policy

14. Relevant Legislation

ARPANS Legislation
Health Insurance Act 1973
Health Insurance (Diagnostic Imaging Services Table) Regulations No 2 (2020)
Health Practitioner Regulation National Law (WA) Act 2010
Occupational Safety and Health Act 1984
Occupational Safety and Health Regulations 1996
Medicines and Poisons Act 2014
Privacy Act 1988
Public Sector Management Act 1994
Radiation Safety Act 1975
Radiation Safety (General) Regulations (1983)

15. Relevant Standards

National Safety and Quality Health Service Standards - 1.27

Royal Australian and New Zealand College of Radiologists (RANZCR) Standards of Practice for Clinical Radiology

The Diagnostic Imaging Accreditation Scheme (DIAS)

16. Related WA Health Policies

MP 0095 Clinical Handover Policy
MP 0122/19 Clinical Incident Management Policy 2019
Code of Practice for Clinical and Related Waste Management
MP 0084/18 Credentialing and Defining the Scope of Clinical Practice Policy
MP 0086/18 Recognising and Responding to Acute Deterioration Policy
WA Health Consent to Treatment Policy

17. Relevant Policy Documents

WACHS Aseptic Technique Policy
WACHS Clinical Observations and Assessments Clinical Practice Standard (physiological [vital signs], neurovascular, neurological and fluid balance)
WACHS Credentialing for Nurse Practitioners and Endorsed Privately Practicing Midwives Policy
WACHS Documentation Clinical Practice Standard
WACHS Hand Hygiene Policy
WACHS Infection Prevention and Control Policy
WACHS Medical Credentialing and Compliance Requirements Guideline
WACHS Medical Imaging – Radiation Safety Management Plan

WACHS Medication Prescribing and Administration Policy
WACHS Patient Identification Policy
WACHS Peripheral Intravenous Cannulae (PIVC) Management Clinical Practice Standard
WACHS Personal Protective Equipment (PPE) Procedure

18. WA Health Policy Framework

Clinical Governance, Safety and Quality Policy Framework

19. Definitions

Carer	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).
Consumer	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.
Direct supervision	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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21. Appendices

Appendix A: Example of clinical conditions suitable for critical test result* notifications

This document can be made available in alternative formats on request for a person with a disability

Contact:	Area Chief Medical Imaging Technologist		
Directorate:	Medical Services	**TRIM Record #**	ED-CO-15-93000
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Appendix A: Example of clinical conditions suitable for critical test result* notifications

(This list is not exhaustive and may not be applicable to all sites)

*__Critical test result__ –A critical test result is defined as 'any result or finding that may be considered life threatening or that could result in severe morbidity and requires urgent or emergent clinical attention'.

Anatomical Site	Critical Condition
CENTRAL NERVOUS SYSTEM	• Extradural or unknown subdural haematoma with mass effect or midline shift • Intracerebral or acute subarachnoid haemorrhage • Acute obstructive hydrocephalus • Dural sinus thrombosis • Acute infarct with visible thrombus in a proximal vessel • Carotid or vertebral artery dissection
SPINE	• Cervical fracture or any two-column / unstable acute spinal fracture • Lytic lesion in an acute vertebral collapse • Cord compression
CHEST	• Acute aortic dissection / rupture • Tension pneumothorax • Pulmonary embolism
ABDOMEN	• Ruptured aortic aneurysm • Haemoperitoneum • Free intraperitoneal gas - not postoperative • Portal vein thrombosis • Any organ rupture or laceration • Ischemic / infarcted bowel
GENITO-URINARY	• Testicular torsion • Ovarian torsion • Emphysematous pyelonephritis or cystitis • Bilateral obstructive kidneys
OBSTETRIC	• Fetal demise • Placental abruption • Ectopic Pregnancy • Fetal anomaly requiring tertiary referral • Cervical length <15mm at anatomy • Major structural abnormality that is unexpected or not previously demonstrated • New finding of SGA fetus (EFW<10th centile) • Falling / static AC • Abnormal Dopplers (>95th UA PI, absent/reversed diastolic flow, <5th MCA- PI, raised MCA-PSV) • Fetal heart rate <110bpm or >170bpm • Reduced fetal movements • Disconcordant growth twins – TAPS/TTS
PAEDIATRIC	• Any lytic lesion in a child's bone • Any fractures with pattern suggestive of Non-Accidental Injury (NAI) / Physical Abuse (PA)
UNEXPECTED FINDINGS	• Active bleeding seen on CT • Unexpected tumour – e.g. renal cancer on CT pulmonary angiogram/ lung mass on routine chest x-ray
OTHER	• Any tube in the wrong place especially nasogastric or naso-enteric tubes – e.g. in the lung • Above knee DVT • Necrotizing fasciitis