RADIATION MANAGEMENT PLAN

Albury Wodonga Health
(Management License No: 300042961)

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Postal: PO Box 326
Albury NSW 2640

First Edition: 15 June 2009

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Plan endorsed and accepted by CEO Albury Wodonga Health who hereby agrees that AWH will adhere to all requirements in the plan.

Signature: 

Date: 

Date for Review: 13 September 2018
Introduction:


The Radiation Management Plan (RMP) outlines the roles and responsibilities attributed to stakeholders within AWH as well as establishing the regulatory requirements associated with the use of ionising radiation.

The Radiation Management Plan includes radiation protection principles used within the organisation based on justification, optimisation and dose limitation. It stipulates that the benefits of a radiation practice or use of a radiation source should outweigh any detriment to persons and/or the environment exposed to the radiation.

Radiation incidents, necessary actions and reporting guidelines are addressed in this plan to ensure all issues are appropriately managed within designated timeframes.

This plan is reviewed annually by the Radiation Safety Officer (RSO) in conjunction with the AWH Executive representative, Medical Imaging and Clinical Governance teams.

NOTE: Any changes to the RMP must have the authority of the Responsible Person and RSO.

Natalie McIntosh
Albury Wodonga Health Radiation Safety Officer

13 September 2017
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ANNEX 1 Building Construction and Plan - Medical Imaging Department
1. GENERAL INFORMATION

1.1 Persons who should read this document:

The RMP should be read by all persons who use or are involved with the use of radiation at Albury Wodonga Health. This includes, but is not limited to, the following:

a. Medical Practitioners (Radiation), including all permanent and locum Radiologists.

b. Radiation Operators (Medical Imaging Technologists), including all permanent, part-time, casual and locum staff.

c. Medical Radiation students on clinical placement.

d. Nursing Staff:

i. Permanently working in the Medical Imaging Department.

ii. From other wards / areas that regularly assist with radiographic examinations or procedures eg: theatre, Emergency Department (ED) and High Dependency Unit (HDU).

iii. Who assist with medical imaging examinations in the department or at the bedside?

e. Other Medical staff directly involved in specialised and/or invasive procedures that require the use of ionising radiation.

f. Any authorised officer from the Radiation Safety Unit of the Department of Human Services (Victoria).

g. Any authorised officer of any State or Federal Government department exercising their statutory duty.

The Radiation Management Plan is accessed electronically on the AWH Intranet > Policies and Procedures > Other > Radiation Management Plan

1.2 Radiation Use at Albury Wodonga Health:

Ionising radiation is used for a range of medical and dental imaging procedures to assist in the diagnosis and treatment of disease.

All examinations using ionising radiation should comply with the International Commission on Radiological Protection (ICRP) Justification principle which states:

No practice involving exposures to radiation should be adopted unless it produces sufficient benefit to the exposed individuals or society to offset the radiation detriment it causes (ICRP 60, 1991, paragraph 112).
Prior to a medical examination / procedure involving ionising radiation being approved, or commenced, the examination / procedure should be justified for that individual.

AWH also adheres to the As Low As Reasonably Achievable (ALARA) principle of Optimisation as defined by the ICRP – all doses should be kept ALARA - taking into consideration economic and social factors.

The ICRP further recommends the principle of Limitation by limiting individual doses as much as possible.

These three principles (justification, optimisation and dose limitation) are the basis of radiation protection in medicine and are known collectively as the Radiation Protection Principles.

1.3 Responsibilities at AWH:

The Code of Practice for Radiation Protection identifies specific roles and responsibilities for different stakeholders within organisations that perform radiation activities. At AWH the delegated responsibilities are:

**Responsible Person:** AWH is legally regarded as the “responsible person” as it has overall management responsibility and control. The responsibilities include:
- Compliance with the Radiation Management Plan.
- Ensuring that systems and/or protocols are in place to ensure that all radiation procedures are justified either individually or generically by an accredited body and approved for each individual.
- Radiation doses are kept as low as reasonably achievable (ALARA).
- Diagnostic doses are recorded and reviewed.
- Diagnostic doses are periodically compared with Diagnostic Reference Levels (DRL’s).

**Radiation Medical Practitioner:** The radiologist is considered the Radiation Medical Practitioner. The radiologist must be appropriately authorised by the relevant regulatory authority and comply with the Radiation Management Plan. The Radiation Medical Practitioner is responsible for:
- Ensuring that all medical radiation examinations / procedures are appropriate and have a net benefit to the patient.
- Examinations are justified and approved.
- Ensuring that radiation doses are optimised.
- Provide advice, when appropriate, to persons regarding radiation exposure.

**Operator:** The radiation operator is the Medical Imaging Technologist (MIT) and all MIT’s must be appropriately authorised by the relevant regulatory authority and comply with the Radiation Management Plan. Their responsibilities in the delivery of medical radiation are to:
- Adhere to Radiation Protection Principles
- Ensure examinations have been justified and approved by the Medical Practitioner.
• Ensure that radiation protection to patients is optimised.
• Ensure that radiation exposure to other persons is minimised
• Ensure examinations are in accordance with written protocols.
• Adhere to protocols.

1.4 Radiation Sources and their Purpose at AWH:

1.4.1 Possession of Ionising Radiation Apparatus at Albury Wodonga Health that are Prescribed Radiation Sources:
Listed on Schedule 2 of AWH Radiation Management Licence.
Location: Medical Imaging – Wodonga Campus:

<table>
<thead>
<tr>
<th>Description / Room</th>
<th>Radiation Source</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-Ray 1</td>
<td>GE Precision RXi Fluoroscopy System</td>
<td>Fluoroscopy and general x-rays</td>
</tr>
<tr>
<td>X-Ray 2</td>
<td>Siemens Ysio Max DR System</td>
<td>General X-Ray</td>
</tr>
<tr>
<td>OPG</td>
<td>OPG - Shimadzu</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>CT</td>
<td>Toshiba Aquilion Prime</td>
<td>Computed Tomography</td>
</tr>
<tr>
<td>Mammography</td>
<td>GE Senographe Essential</td>
<td>Mammography</td>
</tr>
<tr>
<td>Mobile</td>
<td>Siemens DR Mira Mobilett</td>
<td>Mobile radiography</td>
</tr>
</tbody>
</table>

Location: Theatre – Wodonga Campus

<table>
<thead>
<tr>
<th>Description</th>
<th>Radiation Source</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile II</td>
<td>GE – Brivo</td>
<td>Mobile fluoroscopy</td>
</tr>
</tbody>
</table>

Possession of Ionising Radiation Sources at Albury Wodonga Health that are NOT Prescribed Radiation Sources:
Listed on Schedule 3 of AWH Radiation Management Licence.
Location: Dental Clinic - High Street, Wodonga.

<table>
<thead>
<tr>
<th>Description / Room</th>
<th>Radiation Source</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basement – Room 1</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 2</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 3</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 4</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 5</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 6</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 7</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 8</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 9</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 10</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement – Room 11</td>
<td>Dental intra-oral X-ray unit</td>
<td>Dental Radiography</td>
</tr>
<tr>
<td>Basement</td>
<td>Dental intra-oral x-ray unit PORTABLE</td>
<td>Dental Radiography</td>
</tr>
</tbody>
</table>
Dental Clinic - High Street Wodonga:
NOTE: Medical Imaging- Albury Campus is operated by private contractors, Regional Imaging Border (RIB). RIB are responsible for radiation safety and monitoring pertaining to radiation activities at that site. All Radiation sources are owned by RIB with the exception of the PET scanner which although owned by AWH is operated and maintained by Regional Imaging.

1.5 Regulatory Requirements:
Radiation Act 2005 (Vic), - referred in this document as the Act
Radiation Regulations 2007 (Vic) – referred to in this document as the Regulations.

1.6 Department of Health Management Licence Conditions:
Specific conditions apply for each Schedule of the Management Licence – Please refer to this document.

1.7 Penalties for Breaches of the Legislation:
Serious offences relating to such matters as unlicensed activities, lack of incident reporting, failing to comply with licence conditions and causing serious harm to the environment are punishable under the Radiation Act with penalties for the individual (up to 1800 penalty points) and companies (up to 9000 points).

For further details please contact the Radiation Safety Officer.

1.8 Contact Details:
Please see below specific contact details for consultants, businesses and regulatory bodies with respect to radiation and radiation safety.

Medical Physicist
Paul U, MAAppSc (Med Phys)
Principal Medical Physicist and Radiation Safety Officer
Head of Medical Physics Department
Room 6.3, Lance Townsend Building
Austin Hospital, Austin Health
145 Studley Road, Heidelberg, VIC 3084, Australia.
Telephone: (03) 9496 5589 (Office)
0407 811 000 (Mobile)
paul.u@austin.org.au

Regulatory Bodies:
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)

Victorian Department of Health
Neil Wain, Team Leader Radiation Safety
Telephone: 1300 767 469
radiation.safety@health.vic.gov.au/radiation
Radiation Consultants:
Personal Monitoring: Survey Monitor Calibration and Thermoluminescent Dosimetry
Australian Radiation Services
Telephone: 03 98774898
info@australian-radiation-services.com.au

Radiation Compliance Testing:
Radtest
Contact: Steve Crosling
www.radtest.com.au
Telephone: 0417 595 282

Albury Wodonga Health:
Radiation Safety Officer: Natalie McIntosh
Medical Imaging Department – Wodonga
Telephone: (02) 6051 7373
Natalie.mcintosh@awh.org.au

2. LICENCING REQUIREMENTS
The Department of Health and Human Services (Department) is the Victorian Government Regulatory authority which administers the use of ionising radiation sources under the Act. As per the Regulations a Radiation Management Licence is held by AWH which registers radiation practices involving:
• Ionising radiation apparatus.

3. REGISTRATION CONDITIONS
3.1 Registration of Ionising Radiation Apparatus:
The Act requires that all ionising radiation apparatus must be individually registered on the Management License held by Albury Wodonga Health. Radiation Users should be aware of the conditions associated with all radiation practices performed within the organisation and necessary compliance with the Code of Practice.

Please see below conditions pertaining to AWH Management Licence and relevant to this site.

Schedule 1: General Licence Conditions:
M5
The management licence holder must notify the Department within 14 days of the disposal of ionising radiation apparatus (eg: X-ray units).
The notification must be made using the Internet Notification Form at:
The management licence holder must notify the Department within 14 days of the acquisition of ionising radiation apparatus (eg: X-ray units).
The notification must be made using the Internet Notification Form at:
M6
The management licence holder must report any radiation safety incident which occurs in the conduct of the radiation practice in a manner and time consistent with the document titled ‘Mandatory Reporting of Radiation Incidents’ published by the Department and available from: www.health.vic.gov.au/radiation

Schedule 1: Practice Specific Conditions:

M1611
The management licence holder must comply with the obligations of the ‘responsible person’ in the ‘Code of Practice for Radiation Protection in Dentistry (2005)’ as published by the Australian Radiation Protection and Nuclear Safety Agency.

M1615
The management licence holder must comply with the obligations of the ‘responsible person’ in the ‘Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (2008)’ as published by the Australian Radiation Protection and Nuclear Safety Agency.

Schedule 10: Offence Schedule:
Notwithstanding any reference to radiation dose limits in the Code of Practice, the radiation dose limits in the Radiation Act 2005 and Radiation Regulations 2007 will apply.

Further details regarding the obligations of license holders are outlined below.

The licence holder must ensure that an approved personal monitoring device is available to any person who is likely to receive an occupational exposure in excess of 1 mSv total effective dose in a twelve month period, and who is:

- Employed by the licence holder, or
- Uses a radiation source authorised by this licence, or
- May be exposed to ionising radiation by a radiation source authorised under this license.

The license holder must take reasonable measures to ensure that any such person wears a personal monitoring device. The wearing period must not exceed three months and the device must be submitted for assessment following the wearing period.

The licence holder must not intentionally conduct, or knowingly allow, the following actions:

- Tampering or interfering with a personal monitoring device or the personal monitoring records of any person; and
- Use of a personal monitoring device in a manner not intended by the supplier of the device.

The licence holder must keep records of doses received by persons, including details of monitoring results and dose calculation methodologies.
3.2 Registration of Persons who use Radiation Sources – Use Licence:

‘Use licences’ are issued by the Department of Health for individuals who work with radiation sources and are issued to ‘natural persons’ as opposed to companies. The use licence holder must comply with every condition of their licence as outlined in the Act.

**Mandatory Requirements:**
The use licence holder must:

- Comply with the relevant provisions of any radiation management plan which is in place in respect of the radiation practice.
- Wear all personal protective equipment (PPE) provided by the relevant management licence holder.
- Wear a personal radiation monitoring device where provided by the relevant management licence holder at all times while using radiation sources.
- Refrain from careless or reckless practice, or action likely to result in an unexpected radiation hazard to themselves or others.
- Report to the relevant management licence holder any difficulties with working procedures or defects in equipment that may have caused or are likely to cause an unexpected radiation hazard.
- Where the license authorises the use of radioactive material, when not in use, ensure that the source is stored in a shielded and localised container.
- Where the licence authorises the use of unsealed radioactive material, conduct a radiation survey before and after the use of the unsealed radioactive material to confirm the absence of contamination. The survey conducted using monitoring equipment that is both appropriate for the radiation being monitored and calibrated at regular intervals not exceeding one year.
- Use the radiation source in accordance with any relevant written protocol.
- Where the licence authorises the use of unsealed radioactive material for the purpose of preparation of radiopharmaceuticals, use appropriately calibrated instruments to ensure the accuracy of the activity of pharmaceuticals prepared for administration.
- Where the licence authorises the use of a radiation source for the purpose of servicing or maintaining a radiation source, ensure that:
  - All radiation safety equipment is replaced on the radiation source.
  - The radiation source is left in a safe condition following testing, and
  - Radiation monitoring equipment is used that is both appropriate for the radiation being monitored and calibrated at regular intervals not exceeding one year.
  - Ensure that warning signs and barriers are employed around the work area, as far as reasonably practicable, to restrict access of persons not directly involved in the work.

**Further information:**
Email:  [radiation.safety@health.vic.gov.au](mailto:radiation.safety@health.vic.gov.au)
Telephone:  1300 767 469

Staff members are required to hold a Use License prior to operating any ionising radiation apparatus / equipment. Students on clinical placement who work under the supervision of a staff member holding a Use License are exempt from requiring a Use License.
4. **RADIATION SAFETY**

4.1 **Radiation Sources (Equipment) – Routine Maintenance:**
All radiation sources undergo cyclic scheduled maintenance. The number of preventative maintenance services per year is dependent on the individual apparatus.

In the case where a fault is detected, service calls are logged with the respective vendors. Any faults that could compromise the safety of the Operator, patients or other persons should be reported to the RSO. Machines should not be used until optimal operational capacity has been restored.

4.2 **Radiation Sources (Equipment) – Compliance Testing:**
All radiation sources within the medical imaging department – Wodonga Campus (WC) undergo compliance testing as required. Testing is carried out by an approved tester (Radtest) and compliance certificates are issued.

4.3 **Personal Radiation Monitoring:**
Medical Imaging staff that are involved in the use of radiation are required to wear a personal radiation monitor. These are supplied and processed by Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). Cumulative dose reports are viewed and signed by each Operator to ensure that an awareness is maintained of personal radiation doses and early identification of a breach of acceptable dose limits is assured.

When not in use all monitors are stored with the “control” monitor.

4.4 **Radiation Warning Devices:**
Warning lights are activated outside all X-ray rooms during and immediately after radiation exposure to alert persons of radiation activity.

4.5 **Personal Protective Equipment (PPE):**
PPE is available to ensure optimal radiation protection to patients, assisting individuals and occupationally exposed persons.

Lead protective equipment should always be worn by additional persons present in the room when a radiation source is active eg: a parent / guardian assisting a minor, an occupational worker/s involved in fluoroscopic examinations.

An occupationally exposed worker should wear additional protection such as a thyroid collar or gloves in the setting of prolonged or repetitive exposure to radiation.

4.6 **Radiation Safety Officer:**
The Act requires that a Radiation Safety Officer be appointed by the Management License Holder of registered radiation apparatus. At Albury Wodonga Health the Medical Imaging Manager is appointed to the role of the Radiation Safety Officer. The responsibilities of the RSO are:
- Advise AWH Management and Executive on all matters relating to radiation safety within the organisation.
- Register sources of ionising radiation.
- Promote awareness within the organisation regardingionising radiation safety.
• Ensure all radiation operators practice the ALARA principle.
• Assist in the application of Workplace Health and Safety (WHS) procedures on radiation safety.
• Assist in the management of risks and hazards associated with radiation safety.
• Monitor local area compliance with radiation safety aspects of WHS policy and procedures.
• Ensure that all practice protocols are clearly aligned with radiation protection principles.
• Advise, inform and train personnel to ensure that examinations performed in the department, theatre or hospital wards all reflect a combination of radiation minimisation practices and techniques resulting in optimal examinations with dose limitation to all persons.
• Ensure that personal radiation monitoring programs are implemented for all employees as required.
• Ensure that cumulative dose reports for operators / radiation users are reviewed, interpreted and investigated accordingly.
• In the event of a radiation incident - respond to, investigate and develop corrective actions.
• Ensure that all staff are aware of the appropriate actions and reporting procedures if a radiation incident occurs.
• Audit local area legal compliance with regard to radiation safety and report breaches to AWH Management / Executive.

5. WORK RULES AND PRINCIPLES

5.1 General:
• The Medical Imaging Department - Wodonga: was designed by Health Planners Australia and newly constructed in 1998.
• All rooms are appropriately lead lined and compliant at the time of commissioning in 1998.
• Wide corridors service all of the rooms. The placement of the radiation sources within the X-Ray rooms was considered with the primary beams deliberately being directed away from the external patient waiting areas.

The administration areas and ultrasound rooms are displaced from the X-ray and CT rooms and the associated radiation sources.

In addition, a number of practices and processes exist to ensure that all examinations are carried out to the highest standard and in accordance with regulatory requirements. These include:

5.2 Referrals:
Examinations are only performed when a suitably completed and signed request is provided from an appropriate practitioner. The request must:
• Contain adequate patient identifying details.
• Be an appropriate and justifiable examination.
• Ask a clinical question that the diagnostic examination is capable of answering.
• Provide appropriate clinical information that is appropriate to the examination being requested.
• Provide the referrer’s contact details for consultative purposes.
5.3 Positive Patient Identification:
It is mandatory that three core identifiers are confirmed prior to the Operator commencing any examination. The Operator is required to perform the "Radiology Final Check", sign the referral and then scan this referral into the Radiology Information System (RIS). Core identifiers for in-patients are:
1. Name.
2. Date of Birth.
3. Medical Record Number (MRN).

The core identifiers for out-patients are:
1. Name.
2. Date of Birth.
3. Gender.

This is in accordance with AWH Identification of a Patient Policy and Identification of a Patient Procedure.
5.4 Pregnancy Status (Patient):

- The pregnancy status of any patient between the ages of 12 - 55 years of age should be established prior to performing an examination using ionising radiation.
- Consultation with the patient, referrer and medical practitioner prior to examination is required to ensure appropriate outcomes.
- If a non-pregnant status cannot be confirmed any examination that is regarded as non-acute / equivocal should be re-scheduled (depending on the stage of pregnancy and urgency of examination).
- If it is necessary to perform an examination using ionising radiation on a pregnant woman consultation and approval from the Radiation Medical Practitioner is necessary. Lead shielding should always be used when possible.
- Multi-lingual posters outlining the dangers of radiation when pregnant are strategically displayed throughout the department.
Female Patient of Child Bearing Age (12 - 55 yrs)

Pregnancy status questionnaire. Is the patient pregnant?

- **No** (Criteria satisfied)
  - Proceed (Status documented)

- **Unsure**
  - Area of examination

- **Yes**
  - Consult with Radiation Medical Practitioner

**Area of examination**

- **Area other than pelvis.**
  - Proceed with lead shielding

- **Pelvis**
  - Non Urgent
    - Consult with Radiation Medical Practitioner
  - Urgent
    - Pregnancy test to be organised

Do you meet one of the following criteria? It is not necessary to say which one:
- Not sexually active
- Tubal Ligation
- Hysterectomy
- Post-Menopausal
- Partner has had a vasectomy
- Negative Pregnancy Test (BHCG)
- Currently Menstruating
- Mirena / Implanon

Follow 10 Day Rule

- > 10 days from LMP
  - Rebook when status verified

- < 10 Days from LMP
  - Proceed if examination justified
5.5 Dose Limit:
Dose limits should not exceed the following limits as prescribed in the Regulations.

Table: Dose Limits from Schedule 2 Tables A & B of the Radiation Regulations 2007

<table>
<thead>
<tr>
<th>Radiation Workers (Occupational Exposure)</th>
<th>Dose Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole body</td>
<td>50 mSv in any one year</td>
</tr>
<tr>
<td></td>
<td>20 mSv/year (averaged over a period of 5 consecutive calendar years)</td>
</tr>
<tr>
<td>Lens of the Eye</td>
<td>20 mSv/year</td>
</tr>
<tr>
<td>Skin</td>
<td>500 mSv/year</td>
</tr>
<tr>
<td>Hands and Feet</td>
<td>500 mSv/year</td>
</tr>
<tr>
<td>Pregnancy once declared</td>
<td>1 mSv (whole body)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Members of the Public</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Body</td>
<td>1 mSv/year</td>
</tr>
<tr>
<td>Lens of the Eye</td>
<td>15 mSv/year</td>
</tr>
<tr>
<td>Skin</td>
<td>50 mSv (averaged over 1cm ²)/year</td>
</tr>
</tbody>
</table>

5.6 Working with Radiation while Pregnant:
Females who are working with radiation and wish to declare a pregnancy should seek the advice of the RSO.

Schedule 2 of the Regulations specifically addresses the issue of exposing the foetus to ionising radiation while in the workplace and states that the foetus should be treated as a member of the public in terms of dose limits.

5.7 Examinations involving Ionising Radiation:
Justification:
The ARPANSA Code of Practice for Radiation Protection in the Medical Applications for Ionising Radiation states that protocols must be in place to ensure that no radiation procedure is carried out unless:

a. It has been justified (generically or individually) by the radiation medical practitioner or by an accredited body.

b. It has been approved for each individual because written guidelines have already been established and approved by the radiation medical practitioner or an approved body.
Medical Practitioner

Referral received from Medical Practitioner

Generic Justification
Assessment performed by Operator in accordance with established protocol

Justification on an individual basis
Assessment performed by the Radiation Medical Practitioner in accordance with requirements of section 3.2 of the Code

Insufficient clinical notes
Justified
Outside the scope of generic justification

Justified
Insufficient Clinical Notes
Cannot be justified

Approval
Performed by Operator in accordance with guidelines established by the Radiation Medical Practitioner

Not Approved
Operator requests justification on individual basis

Approval
Performed by the Radiation Medical Practitioner in accordance with Section 3.2 of the Code

Examination Proceeds
Justification documented in patient's file on RIS

ALL PAEDIATRIC OR PREGNANT PATIENTS REQUIRE JUSTIFICATION ON AN INDIVIDUAL BASIS
Optimisation:
All examinations using ionising radiation should be optimised.

Many factors are employed to ensure that the examination is optimised and to also ensure that the radiation dose is limited to ALARA. These include:
• Correct patient identification.
• Adherence to examination protocols.
• Optimal patient positioning.
• Appropriate exposure selection.
• Immobilisation – use of accessory equipment such as positioning pads to reduce motion artefact
• Collimation.
• Application of distance and shielding principles to minimise exposure.

Dose Limitation:
Additional dose limiting measures include:
• Do not repeat examinations unless necessary.
• Only image areas specific and / or relating to the clinical presentation
• Only allow necessary personnel into examination rooms.

Staff:
• Positioned behind lead screens when exposing.
• Use of Personal Protective Equipment such as lead aprons, gloves and thyroid shields when unable to be positioned behind protective screens.

Patients:
• Use of gonad shielding.
• Use of Protective Equipment such as Lead Aprons.

6. HAZARD ASSESSMENT
6.1 Relating to Radiation Sources:
• Early detection of potential radiation hazards is addressed through a combination of staff education, high equipment standards, adherence to equipment maintenance scheduling and personal radiation monitoring.
• Any potentially hazardous finding should be immediately reported to the Radiation Safety Officer (RSO) and resolved as soon as possible by qualified personnel.
• A faulty machine should not be used until optimal operational behaviour has been restored.
• Potential hazards from radiation sources relating to biological effects are minimised through rationalisation of each examination using a process of justification, optimisation and dose limitation. Measures used to control radiation exposure include:
  - Avoid exposure to radiation wherever and whenever possible.
  - Isolate radiation sources where practicable through the use of shielding, containment and remote handling techniques.
  - Adopt safe work practices.
  - Ensure basic protective actions are employed such as appropriate use of time, distance and shielding to minimise exposure.
- Use approved personal protective equipment when other control measures cannot be employed.

**Relating to Access into Rooms Containing Radiation Sources:**
- Patients should always be escorted into rooms containing a radiation source by the Operator.
- All staff should be aware of the potential hazard of an unplanned exposure to radiation where two way access doors exist into rooms with a radiation source. Where possible these doors should remain locked until the Operator is ready to proceed with the examination.

**6.2 Relating to Personal Protective Equipment:**
Early identification of faults relating to personal protective equipment is essential to ensure that wearers are genuinely protected. An annual audit of PPI (lead aprons) is conducted and faulty equipment flagged and removed from use as appropriate.

**7. EMERGENCY PROCEDURES**

**7.1 General:**
Emergency Procedures must be developed for all areas where ionising radiation is in use.

**7.2 Reportable Radiation Incidents:**
Conditions attached to the AWH Management Licence (Schedule 1: Condition Number M6) require mandatory reporting of all incidents involving ionising radiation. These must be reported to the RSO within 24 hours: Examples of a “radiation incident” are:
- Unplanned or abnormal exposures other than a justified medical exposure to a person who receives a dose of ionising radiation exceeding 1 mSv total effective dose.
- Unplanned exposure to a patient, staff or general public greater than 1 mSv.
- Unplanned exposure to patients eg: incorrect patient receiving examination.
- Damaged or malfunctioning source eg: person received a higher radiation dose that would be received under normal circumstances.
- Loss or theft of a radiation source.

This reporting format should be followed in all instances where a radiation dose is higher than expected and/or appropriate.


**7.3 Radiation Incident Reporting and Investigation Procedure:**
Protocols have been developed and are available to assist with the management of any potential radiation incident and/or hazard.

These are:
- Report incident / hazard to RSO.
- Incident documented on Internal Incident Registry (VHIMS).
- RSO to report incident/ hazard to AWH Executive Director of Medical Services and Chief Executive Officer within 24 hours.
- Notify Victorian Department of Health and Human Services in an appropriate time frame.
- Notify Victorian WorkCover Authority (VWA) - Notified by AWH Health Safety and Wellbeing Officer.

**Flow Chart: Radiation Reporting and Investigation**

1. **Is the incident an emergency and does it require immediate action?**
   - Yes: Contact RSO
   - No: VHIMS Incident Report

2. **Contact RSO**
   - Yes: RSO
   - No: AWH Health & Safety Wellbeing Officer

3. **Is the incident reportable to DHS?**
   - Yes: RSO to prepare DHS incident report
   - No: RSO/ AWH

4. **Corrective Action**
In all cases where a person has received an unplanned radiation dose as a result of a radiation incident or accident the RSO will ensure:

- An investigation of the radiation incident will be undertaken.
- Operators, patients, staff and other persons at risk of accidental exposure are medically assessed.
- All associated irradiating equipment will cease to be used until a safety inspection has been undertaken and a written report obtained. Any malfunctioning equipment will only resume operation if appropriate inspections and repairs have been performed and written confirmation obtained deeming that the equipment is safe.
- The radiation dose is expertly calculated and the patient counselled (please see attached table with reference values for radiation doses received for different diagnostic radiography examinations).

7.4 Radiation Advisory Committee:
At AWH the Radiation Advisory Committee is part of the overarching Workplace Health Safety Committee. All radiation incidents and items relating to radiation safety are reported through this organisational pathway.

8. RECORD MAINTENANCE

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<thead>
<tr>
<th>AWH Management Licence</th>
<th>Medical Imaging</th>
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<tr>
<td>Personal Monitoring Records</td>
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<td>Incident Reports</td>
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<td>Equipment Maintenance Records</td>
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REFERENCES

Victorian Regulatory Documents

ARPANSA Radiation Protection Series (RPS)

NHMRC Radiation Health Series (RHS)

Miscellaneous
# ACRONYMS

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<tr>
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<tr>
<td>ALARA</td>
<td>As Low As Reasonably Achievable</td>
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<tr>
<td>ARPANSA</td>
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Related AWH Documents:

Accreditation Standards:

Other Relevant Information:

References:

Contact Point: Medical Imaging.

In consultation with:

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