



National Standard for Limited X-ray Operator Services

1. Purpose

This document identifies the minimum requirements of rural and remote medical imaging services that utilise Rural and Remote Limited Licensed X-ray Operators (LXO). It also identifies individual accountabilities and responsibilities in relation to these requirements.

2. Scope

In order to provide quality medical imaging services that meet the needs of all Australians LXO services shall be restricted to areas that have very limited or very little access to medical imaging services.

This standard applies to all employees involved in the provision of medical imaging services delivered by LXOs.

3. Requirements

- LXO services shall comply with relevant laws and legislation and the requirements of the Australian Institute of Radiography (AIR).
- LXOs shall be nationally registered health professional and also hold a use licence as prescribed by the Radiation Safety Act in the state in which they are employed
- Facility managers and radiation safety officers (RSO) shall ensure all authorised persons are aware of, and comply with the licence restrictions imposed on the LXO staff at their facility
- Facility Managers and RSOs shall ensure compliance with the facilities Radiation Safety and Protection Plan (RSPP)
- The medical imaging equipment used by LXOs should be appropriate, and comply with state based equipment regulations for the examinations that the LXO has been assessed as competent to perform
- The facility should demonstrate that well established staff support and telecommunication networks are available to enable the standard to be met.

4. Workload demand

- Facility managers in consultation with the Radiographic Advisor (RA) shall assess the LXO service needs annually. This assessment should consider:
 - Workload levels necessary to maintain staff competency*
 - Community access to a medical imaging service
 - Staff levels sufficient for workload demand and appropriate access to a RA*
 - Adequate resources to cover ongoing staff training and support requirements
 - Need to employ a radiographer should the workload be greater than 800 examinations annually**

*Note: Staff levels and competency relate to workload demand due to links between frequency of practice and competence. As the LXOs workload reduces, the need for training and support increases. However, if workloads increase and it is warranted, then a radiographer should be employed which will further increase the quality, number and type of exams performed. To ensure appropriate accessibility, the RA's workload also requires assessment.

** examinations not occasions of service.

5. Candidate selection

- A RA, with Certificate IV level in training and assessment and greater than three years post graduate experience, shall be appointed to take on supervision and support of LXOs
- In consultation with the appointed RA, Facility managers shall select appropriate LXO candidates
- Candidates shall be identified by an Expression Of Interest (EOI) process (Appendix A), with the evaluation for additional LXOs taking into account the criteria in 4 above
- Appointment of new LXOs shall be made by the facility manager
- Facility managers shall notify the RA and RSO responsible for the facility of the appointment of staff that hold registration and licence or probationary registration and a trainee use licence prior to commencement of their LXO duties
- If the candidate is not registered with the Australian Health Practitioner Regulation Agency (AHPRA), new registration applications shall be accompanied by a letter of justification and a portfolio of their work if they are currently working in imaging, to the AIR.



6. Initial Training

- All LXOs shall successfully complete an appropriately endorsed course at Certificate IV level on basic radiographic technique prior to application for probationary registration and application for a trainee use licence
- Within 30 business days of successfully completing the endorsed course, practical face-to-face supervision consisting of a minimum of 40 hours shall be undertaken at a suitable training at a regional hub.
- A RA or designated radiographer shall be available for supervision, mentorship and training of LXOs at all times
- While on probation ; periodic evaluation of performance shall be conducted by the RA to ensure continued progress of skill and safety, and shall form part of the supervision agreement (Appendix B)
- Additional training shall be at the discretion of the RA and included in the supervision agreement.
- All LXOs shall comply with relevant guidelines and work within the scope of registration and licensing.

7. Supervision Agreement

- A supervision agreement, valid for 12 months shall be entered into between the LXO and the RA.
- The contents of this agreement shall be endorsed by the LXOs facility manager. Copies of the signed agreement shall be held by the LXO and the RA
- As evidence to support certification and licence renewal, LXOs shall hold a record of supervision, support and training received.

8. Ongoing Radiographic Advice and Training

- All LXOs shall be able to contact their RA (or a designated radiographer) for the provision of mentorship, advice and training at all times
- Some facilities will rely on a group of radiographers to provide radiographic support and advice. Such situations shall still require the identification of a single radiographer to be assigned as RA to the LXO
- LXOs shall have access to appropriate telecommunication resources at all times to meet service requirements



- Each LXO shall have intensive, practical face-to-face supervision annually for skill maintenance. The annual face-to-face supervision shall be carried out at the LXOs facility and be for a minimum of 40 hours
- Regular assessment of LXO images shall be conducted by the RA and feedback given to the LXO as outlined in the supervision agreement.

9. Assessment

- LXO certification and licensing shall be issued for a 12 month period
- A 'certificate of competency' shall be required for certification and licensing
- Assessment and issue of 'certificates of competency' and appropriate licences shall be conducted by Certificate IV endorsed radiographers
- An independent Cert IV qualified Radiographer assessor other than the RA should conduct competency assessment
- Assessments shall be performed face-to-face not more than 3 months prior to expiration date.

10. On Call Practices

- To enable radiographers (including RA) to be off all forms of call; the LXO must get support or supervision from facilities with 24 hour medical imaging services with on-site radiographers or on call radiographers.

11. Emergencies

- In such medical emergencies, where it is decided that it is necessary to preserve the life or wellbeing of the patient by performing an examination outside the usual scope of the licence, the attending medical practitioner must certify and sign in the patient's record that this was the case
- Emergency examinations, outside the usual scope of competency including paediatric examination of the LXO should only be undertaken after prior consultation with the RA (or designated radiographer) and fully documented including notification to the Licensing Authority (eg: EPA).



12. Responsibilities

Position	Responsibility	Audit Criteria
Facility Manager	<ul style="list-style-type: none"> • Ensure compliance with the standard • Review the LXO service workload demand in consultation with the RA • Ensure all LXOs meet the training requirements • Select appropriate LXO candidates in consultation with the RA, while adhering to the candidate selection criteria • Notify RA and RSO of new LXO staff • Ensure release of LXO staff to allow compliance with training requirements • Provide sufficient resources to allow LXO staff to comply with national standard • Endorse supervision agreements • Ensure LXO are available for regular scheduled meetings with RA • Arrange licence assessment 	<ul style="list-style-type: none"> • Current record of training for each LXO at facility • Evidence of consultation with RA and RSO • Current record of number and type of examination performed at the facility in last 12 months • Current record of number and type of examination performed by each LXO in previous 12 months
Radiographic Advisor (RA)	<ul style="list-style-type: none"> • Lead the creation of LXO supervision agreements • Be available for support and advice at all times (notify LXO of a designated radiographer and their details as an alternate contact) • Monitor the image quality performed by the LXO under their supervision • Perform periodic evaluation of trainee LXO • Liaise with Facility Manager to organise annual assessment by an independent radiographer 	<ul style="list-style-type: none"> • Registered and licensed Radiographer • Minimum of 3 years post graduate experience • Certificate IV in training and Assessment • Current record of all LXOs under their supervision • Current record of all endorsed supervision agreements • Evidence of feedback provided to LXO for image review/assessment • Documentation of any communication with LXO

Limited X-ray Operator (LXO)	<ul style="list-style-type: none"> • Comply with the national standard • Work within the scope of their registration and licence • Document supervision, training and support received • Record all exposure taken including repeat exposures • Ensure registration and licence does not lapse 	<ul style="list-style-type: none"> • Current record of all examinations performed • Current record of training and support • Current registration and licence • Current record of supervision agreement • Documentation any communication with RA
Radiation Safety Officer (RSO)	<ul style="list-style-type: none"> • Ensure Facility Manager, RA, and LXOs comply with RSPP 	<ul style="list-style-type: none"> • Current RSPP

13. LXO responsibilities

LXO Responsibility	Key Performance Indicators
Radiographic Technique	
Use radiographic anatomy to perform and review examinations	<ul style="list-style-type: none"> • Describe radiographic anatomy and pathology, and develop an understanding of normal radiographic appearances • Apply knowledge of skeletal anatomy within scope of practice and identify anatomical landmarks
Critically appraise images	<ul style="list-style-type: none"> • Perform personal critique of images and critically evaluate against optimal diagnostic quality • Following consultation with RA, repeat sub optimal images or perform further views as required
Use correct positioning techniques	<ul style="list-style-type: none"> • Correctly position patient, applying knowledge of geometry and positioning terminology • Correctly use positioning aids • Explain requirements to patient
Perform diagnostic imaging examinations with limited scope	<ul style="list-style-type: none"> • Apply best practice in performing all general radiographic examinations within limited scope, to best of clinical ability • Examinations on paediatric patients (under 16 years of age) should not be performed • Effectively facilitate and complete x-ray examination • Undertake minimum views and exposures required
Prepare for an x-ray examination	<ul style="list-style-type: none"> • Restocking consumables as needed • Prepare patient for examination • Anticipate required equipment and accessories • Consult with RA as required



Radiation Safety and Legislation	
Limit radiation risks	<ul style="list-style-type: none">• Put radiation safety precautions and dose reduction strategies into practice• Correctly use personal radiation monitoring• Observe guidelines for staff/carer assistance during examination• In collaboration with referrer, identify when pregnancy is a contraindication to the examination
Provide x-ray services according to legislative requirements	<ul style="list-style-type: none">• Adhere to legislation and Radiation Safety and Protection Plan (RSPP)• Understand and monitor premises and apparatus compliance requirements• Understand roles of Facility Manager and Radiation Safety Officer (RSO)• Undergo annual competency assessment and maintain registration and licence if you want to use licensing ?• Correctly identify and annotate radiographs, including correct use of side markers
Assess imaging referral	<ul style="list-style-type: none">• Determine if imaging requests are correctly completed by authorised referrers in accordance with relevant legislation• Assess the request form in order to ensure correct examination has been requested and to prioritise patients• Query incorrect or unnecessary referrals to reduce patient dose• Correctly interpret the request form including acronyms and medical terminology
Radiographic Equipment	
Correctly use x-ray equipment	<ul style="list-style-type: none">• Appropriate manipulation of x-ray tube and components, including manual handling skills• Apply knowledge of the properties of x-rays to correctly manipulate control factors to optimise image quality• Apply knowledge of selectable parameters that influence patient dose• Set exposure factors in accordance with exposure guide and use numeracy skills to correctly adjust exposure factors
Correctly use image processing equipment	<ul style="list-style-type: none">• Effectively use imaging equipment, including working knowledge of components and ability to troubleshoot minor issues• Optimise image values where appropriate



Correctly use ancillary equipment	<ul style="list-style-type: none"> • Safely use ancillary equipment, including cleaning and storage • Correctly use of grids and buckys
Perform basic equipment maintenance and troubleshooting	<ul style="list-style-type: none"> • Identify artefacts and troubleshoot faults • Ensure equipment maintenance is carried out regularly by qualified personnel and records maintained • Recognise equipment malfunctions, minimise effects, appropriately document and report • Undertake Quality Assurance (QA) processes, including warm up and shut down procedures • Correctly store and maintain Personal Protective Equipment
Administration and Professional Skills	
Correctly manage documentation and information management systems	<ul style="list-style-type: none"> • Archive images • Accurate data entry and management; maintaining patient confidentiality • Access information and troubleshooting simple problems • Perform additional administrative tasks
Actively seek to improve knowledge and skills	<ul style="list-style-type: none"> • Participate in training, performance appraisal and development processes • Participate in professional support • Demonstrate ability to learn new skills and apply within the workplace • Access development activities, e.g. attendance at workshops, online support, peer review
Adhere to organisational policies and procedures	<ul style="list-style-type: none"> • Correctly identify all patients • Document or report significant events/incidents • Comply with local radiology reporting and billing processes • Apply workplace and clinical policies e.g. Code of Conduct, Basic Life Support etc.
Seek guidance when required	<ul style="list-style-type: none"> • Recognise clinical and professional limitations and work within scope of practice • Access relevant resources, e.g. radiographic positioning manuals • Seek guidance and advice from RA or designated radiographer when required
Provide x-ray services efficiently	<ul style="list-style-type: none"> • Manage time and workflow, including the incorporation of emergencies • Ensure timely arrival of all patients • Access and organise daily patient list and other relevant information to determine clinical priority and patient order



Communicate effectively	<ul style="list-style-type: none">• Develop productive communications with patient, by providing a concise explanation of examination to the patient so they are fully aware of what will occur, and encouraging patient compliance• Develop positive appropriate communication with other health professionals• Literacy in English, including reading, writing, listening to and clarifying workplace instructions• Alter language and communication style according to audience• Utilise various communication devices
Work collaboratively within a multidisciplinary team	<ul style="list-style-type: none">• Willingness to accept delegated tasks within scope of role• Liaise appropriately with staff, e.g. clinical, administrative, and operational staff, and know own limitations within team
Patient Care	
Provide patient care	<ul style="list-style-type: none">• Undertake all required elements of the patient pathway• Offer physical and psychological care to patients• Maintain client focussed care• Exercise ethical judgement and empathy to resolve patient enquiries and problems• Correctly determine any relevant contraindications• Maximise patient comfort to increase compliance
Perform radiographic examinations in a range of clinical situations	<ul style="list-style-type: none">• Work independently in a range of patient presentations• Exercise personal responsibility and make decisions in unpredictable circumstances, e.g. trauma• Identify patients that may need a modification to their procedure due to an underlying medical condition
Perform examination safely	<ul style="list-style-type: none">• Utilise safe work practices in accordance with Workplace Health & Safety (WH&S) standards, including manual handling• Perform all examinations safely ensuring patient is not placed at any undue risk of injury and their medical condition is considered
Perform examination in a clean environment	<ul style="list-style-type: none">• Follow guidelines for infection control• Maintain a clean and orderly work area



14. Recommendations

Recommendation	Comments
1. Adopt a national standard	The AIR as the professional body should play a lead role in a process of consultation and negotiation to eliminate the disparity between states. A national standard is required to set the professional standards that each LXO must meet.
2. Establish a common core program of education and training	The AIR has the know-how to establish the education and training framework that ensures each LXO meets and maintains the threshold level of practice within their defined range of practice.
3. Provide a category of professional membership with the AIR	Under a National Scheme, practitioners would register once, renew yearly, and could practice anywhere in remote or very remote Australia (Appendix C) (within the scope of their registration). Continuing Professional Development (CPD) and indemnity insurance are important considerations.
4. Establish education and credentialing	The purpose of ongoing revalidation is to protect the public by ensuring that only operators who have the skills, qualifications and knowledge to provide safe care are practicing. Professional bodies can provide opportunities for CPD and credentialing.
5. Develop national clinical practice guidelines and protocols	The AIR has the expertise to work with stakeholder organisations to develop appropriate guidelines and protocols that facilitate safe practice.



Appendix A: Example Expression of Interest

Expression of Interest

Limited X-ray Operator

Back of Bourke Clinic

Applications are invited from permanent and registered Australian Health Practitioner Regulation Agency (AHPRA) staff interested in undertaking training to become a Limited X-ray Operator (LXO).

Requirements include but are not limited to:

- Interest in x-ray services
- Demonstrate a willingness and ability to learn new skills
- Regular capability to be released from primary duties
- Willing and able to participate in on-call duties (overnight and some weekends)
- Adherence to the training program, including reading relevant information, training manuals and books
- Intention to remain at this facility for a minimum of 12 months following initial training
- Willing to update skills by attending workshops, seminars, in-service
- Maintain a current radiation use licence

Applications should include a word document addressing each of the above requirements.

Conditions:

- The applicant will undergo annual competency assessment – as required for radiation licence renewal
- Familiar with and ensure their actions are not in breach of the *Radiation Safety Act 1999* or *Radiation Safety Regulation 2010*
- Successful applicants will be given access to telecommunication resources such as email, phone and internet to maintain their skills and knowledge in x-ray services
- Applications will be accepted from AHPRA registered candidates

If you would like to extend your involvement in patient care and contribute to the x-ray service provision at this facility, please submit your expression of interest in writing by.....



Decisions on successful applicants will be made in discussion with line managers and the radiographic advisor.

A short list of candidates will be interviewed

For further information please contact John or Joan below.

John Smith

Facility Manager – Back of Bourke

Email: John.smith@yourhealth.com.au

Phone:

Jane Doe

Radiographic Advisor – Just outside Bourke

Email: Jane.doe@yourhealth.com.au

Phone:



Appendix B: Example Supervision Agreement

Limited X-ray Operator Supervision Agreement

From / / to / / (maximum 12 months)

Learning Objectives

These objectives should be identified through discussion and image review between the Radiographic Advisor (RA) and the Limited X-ray Operator (LXO). These objectives should have a tendency toward improving image quality and patient outcomes.

1. _____

2. _____

3. _____

4. _____

Attach additional sheet if required



Examination Supervision (please explain the intent and meaning of the list below)

Until deemed proficient in performing the following exams (ticked) the LXO must consult with their RA prior to performing the exam.

- | | |
|--------------------------------------------------|---------------------------------------|
| <input type="checkbox"/> Paediatric Examinations | <input type="checkbox"/> Elbow |
| <input type="checkbox"/> Lateral Cervical Spine | <input type="checkbox"/> Forearm |
| <input type="checkbox"/> Shoulder | <input type="checkbox"/> Wrist/Hand |
| <input type="checkbox"/> Humerus | <input type="checkbox"/> Knee |
| <input type="checkbox"/> Abdomen | <input type="checkbox"/> Tibia/Fibula |
| <input type="checkbox"/> Pelvis/Hip | <input type="checkbox"/> Ankle/Foot |

Communication Structure

Frequency: (Planned dates of contact – minimum 3/12)

Duration:

Contact Method: (I.e. telephone, video, face-to-face)

Image Assessment:

Frequency: (I.e. weekly, fortnightly, monthly)

Feedback Method: (I.e. email, telephone, face-to-face)



Participants Agreement:

I agree to the parameters of the above supervision agreement. I agree that the time utilised as part of this agreement will be documented and signed as evidence of supervision and training in limited x-ray operator duties.

Limited x-ray operator: _____

Signature: _____

Employment location and Date: _____

Radiographic advisor: _____

Signature: _____

Employment location and Date: _____

Facility manager: _____

Signature: _____

Employment location and Date: _____



Learning Objectives Examples (include but are not limited to):

- Ensure marker is placed within the collimated field at exposure
- Use electronic annotations when required
- Ensure images are presented in anatomical position prior to sending
- Submit critique forms on a regular basis
- Use radiographic aids more frequently
- Use the smallest Image plate
- Demonstrate collimation on all my images
- Keep an organised Log Book
- Try and assist other LXOs as much as possible
- Prepare room prior to the patient arriving
- Check for previous images



Appendix C: ARIA Categories

- 1. Highly Accessible** (ARIA score 0 - 1.84) - relatively unrestricted accessibility to a wide range of goods and services and opportunities for social interaction.
- 2. Accessible** (ARIA score >1.84 - 3.51) - some restrictions to accessibility of some goods, services and opportunities for social interaction.
- 3. Moderately Accessible** (ARIA score >3.51 - 5.80) - significantly restricted accessibility of goods, services and opportunities for social interaction.
- 4. Remote** (ARIA score >5.80 - 9.08) - very restricted accessibility of goods, services and opportunities for social interaction.
- 5. Very Remote** (ARIA score >9.08 - 12) - very little accessibility of goods, services and opportunities for social interaction.

Reference:

Information and Research Branch, Department of Health and Aged Care 2001, 'Measuring Remoteness: Accessibility/Remoteness Index of Australia (ARIA) Revised Edition', *Department of Health and Aged Care*, October, retrieved 24 November 2013, <[http://www.health.gov.au/internet/main/publishing.nsf/Content/E2EE19FE831F26BFCA257BF0001F3DFA/\\$File/ocpanew14.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/E2EE19FE831F26BFCA257BF0001F3DFA/$File/ocpanew14.pdf)>