Division of Cancer, Diagnostics & Support Services

Imaging Business Unit Procedure for 'Plain Film' Radiographic Examinations.

Referral Guidelines, Authorisation and Justification Criteria

University Hospitals of Derby and Burton NHS Foundation Trust

Reference Number: PF 99	**Version Number** 6.4		**Status:** Active	**Document Owner:** See QPulse 'document records' for electronic signature **Job Title:** Clinical Director – Imaging
Version / Amendment History	**Version**	**Date**	**Author & Role**	**Reason**
	1.0 – 5.1	2001 – 08/2020	Various	Several updates and reviews
	6	22/07/2021	Lisa Dowson, Deputy General Manager	Updates to PF 43, PF 40, PF 14 and PF 07 following MEC review. Updates to document and version history.
	6.1	23/11/2021	Lisa Dowson, Deputy General Manager	Updates to PF 16, PF 30, PF 32 and PF 40 following MEC review
	6.2	24/12/21	Lisa Dowson, Deputy General Manager	Update to PF 045
	6.3	09/02/22	Emma Lawson, Supt. Ionizing Radiation	Update to PF 015
	6.4	23/06/23	Huw Thomas Lead Radiographer for Non-Medical Referrers	Update to reflect electronic signatures. FL 043 IVU added.

Intended Recipients – Essential to Role	**Intended Recipients – For Awareness / Reference**
Operators & Practitioners ACD Plain Film CD – Imaging Chair Trust RPG	Referrers
Communication: Emails via QPulse to Operators and Practitioners working under this protocol.	**Training:** Operators and Practitioners receive training on this protocol and other IRMER Procedures.

Referrers are notified of the protocol and its location by letter, Available on QPulse,	

To be Read in Conjunction with:

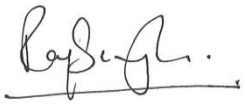
Trust Policy Employer's procedures to meet the requirements of Schedule 2 of the Ionising Radiation (Medical Exposures) Regulations and those covering other matters relevant to the conduct of examinations involving the exposure of patients to ionising radiation.

Groups & Stakeholders Consulted	**Equality Impact Risk Assessment**
General Manager Clinical Director Key Referrers	**Stage 1:** Completed **Stage 2:** N/A

Approving Groups: Plain
Film Medical Exposures Committee, Imaging PQRS, Radiology Advisory Group

Authorising Committee: The Trust
Radiation Group ratify Documents issued in accordance with The Trust Radiation Safety Policy and authorise their uploading to the Trust intranet and internet sites.

Imaging BU Sign- Off:



Dr Rajeev Singh Date: 21/11/2022
Clinical Director – Imaging

Dr Rathy Kirke Date: 21/11/2022
Clinical Director – Imaging

Mr David Tipper Date:01/07/2020
General Manager
and Lead Radiographer

Divisional Sign-Off:

Protocols approved by the Trust Radiation Protection Group

Active from: 03/07/2018	Review Frequency: Annual	Review Due: Please see QPulse

Uncontrolled when printed. Staff should consult the electronic master copy of each clinical protocol for the definitive version

This document remains in force until replaced or withdrawn.

Index

Examination Protocols: ‘Plain Film’ Examinations

Introduction

Evidence Base for these Protocols:

The Royal College of Radiologists: iRefer.

User Groups:

Referrers:

These guidelines are designed to assist the Referrer in selecting the most appropriate investigation for the patients clinical condition.

These are protocols for each common clinical situation. There are no definite recommendations for each examination. Requests for clinical indications not listed in these protocols but which are within the Royal College of Radiologists ‘iRefer guidelines’ will be considered but require direct Justification by a practitioner on a case by case basis.

The aim for all examinations is to obtain maximum information with minimum radiation, so as to meet the legal requirement to keep radiation doses as low as is reasonably practicable (ALARP). The examination performed will be based on the referral information provided and may differ from that requested. It is important that referrers are aware of this potential variation, since the imaging undertaken may not be what the referring clinician expects. Where the referrer wishes specific radiographic projections, or for the examination to performed in a particular way, they must provide the rationale for this as part of the referral so that it can be considered by the operator or practitioner as part of the authorisation or justification decision.

Operators

These guidelines are designed to assist the operator in decision making when authorising referrals.

Examination requests meeting the criteria listed in this protocol may be authorised by the operator. All examinations authorised by the operator under this protocol will be conducted accordance with the standard examination protocol indicated for the clinical information and referral source.

Examination requests not meeting the criteria listed must be passed to a Practitioner for individual justification. If considered justified, the practitioner will indicate the examination protocol to be followed by the Operator.

Practitioners

These guidelines are designed to assist the practitioner in decision making when justifying referrals.

Examination requests meeting the criteria listed in this protocol may be authorised by the operator. The Clinical Director for Imaging acts as Practitioner for all examinations authorised under this protocol; which will be conducted accordance with the standard examination protocol indicated for the clinical information and referral source.

Operators will pass any examination request not meeting the criteria listed in the protocol to a practitioner for individual justification. If considered justified, the practitioner will indicate the examination protocol to be followed by the operator. The individual practitioner making the justification decision is the practitioner for that examination.

All Examinations

All examinations requests will be conducted in accordance with the employer's procedures to meet the requirements of Schedule 2 of the Ionising Radiation (Medical Exposures) Regulations and those covering other matters relevant to the conduct of examinations involving the exposure of patients to ionising radiation.

Implementation, Training and Dissemination

All operators and practitioners undertaking plain film radiographic examinations will be trained on these protocols and must follow them in their day to day work.

The protocols will be available to Operators and Practitioners:

- On QPulse
- On the Radiology Shared Drive (Until QPulse is available at all UHDB sites)
- As printed copies in relevant clinical areas (managed by the Superintendent Radiographer for the area)

All referrers will be notified of these guidelines which will be available to them:

- On the Trust intranet site (Net-i)
- On the Trust internet site

Trust staff have access to the RCR iRefer website via Net-i

Monitoring Compliance

Audit of compliance with each employer's procedure forms part of the Imaging Quality Management Audit programme.

Examination	Skull
Description	X-Ray examination of the Skull. Only justified with specific indications – CT usually indicated for A&E imaging, except for bony lump &? FB where single tangential may be indicated. Rare trauma situations - 2 views in orthogonal planes only (eg. frontal injury = PA and lateral, parietal injury = lateral & PA, occipital injury = lateral & townes)
Clinical Indications allowing Justification / Authorisation	**Trauma** - Plain film skull radiography for trauma should only be performed on the rare occasions where CT is not indicated. **Non Trauma -** Lump - ? bony ? foreign body. As part of a skeletal survey (see protocol), shunt dysfunction (see shunt series), and in paediatrics only; suture synostosis.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.

Protocolling	Examinations are performed in accordance with this standard protocol.	
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: PA: 80 kVp, AEC or 12.5 mAs, 110cm, Grid / Bucky Lateral: 75 kVp, AEC or 8 mAs, 110cm, Grid / Bucky Townes: 80 kVp, AEC or 15 mAs, 110cm, Grid / Bucky CR 70kVp, AEC or 15 mAs	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: PA: 70 kVp, 16 mAS, 110cm, Grid / Bucky Lateral: 70 kVp, 13 mAs, 110cm, Grid / Bucky Townes: 70 kVp, 16 mAs, 110cm, Grid / Bucky.
Patient Position	Seated on couch / trolley	
Standard Examination A& E – Trauma rare cases	**Projection** Straight PA or AP (PA where possible)	**Centering Point** To occiput with emerging ray through glabella RBL at 90 degrees to cassette

	Lateral (Trauma: HBL Affected side)	HCR midpoint between glabella and occipital protuberance
	Townes (AP or PA modified)	5cm above the glabella, central ray through foramen magnum
A&E / GP – Bony Lump/FB	Tangential	At site of potential pathology. Reduced exposure for soft tissue detail
Other	See :- Shunt Series Paediatric Skull Skeletal Survey	
Additional Views		
SMV		Midway between mandibular angles
Comment	**CLINICAL COMMENTS TRAUMA:** • CT is the first line investigation foe high and medium risk intracranial injury. **Indications:** Suspected foreign body or penetrating injury, depressed skull fracture, focal neurological signs, fit, skull # on SXR, unstable systemic state. • SXR not required if a CT head scan is to be performed. • Paediatrics: Please see Paediatric Imaging guide. • Paediatrics – a turned lateral is acceptable, particularly in children under 2years old, if not able to undertake HBL. • **Not indicated for pituitary lesion, dementia CVA, headaches, epilepsy.**	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will	

	advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Reporting Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL (August 2019) PA: ESD – 1.8 mGy (DAP 135 cGycm2) Lateral: ESD – 1.1 mGy (DAP 83 cGycm2)
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within

	the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Facial bones
Description	Facial bones
Clinical Indications allowing Justification / Authorisation	Mid facial Trauma, orbital blunt injury (orbital projections for penetrating injury)
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of . radiopaque items from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: OM / OM 30: 80 kVp, AEC or12.5mAS, 110 cm, Grid / Bucky Lateral: 70kVp, AEC or 8 mAS, 110 cm, Grid / Bucky CR 70 kVp AEC or 16 mAs	
	Burton sites Pre-programmed exposure, modified according to patient size. For an average sized adult: OM/OM30: 70kVp 16 mAs Lateral: 70kVp 16mAS.	
Patient Position	Seated / Standing / Supine on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	OM	Central ray to pass through the midline between the lower orbital margins
	OM 30	30 degree caudal angle. Central ray to pass through the midline between the lower orbital margins
Additional Views		
Lateral (horizontal beam) – Specialist referral. Not standard for Trauma	Lateral (HBL) – to demonstrate fluid levels within sinuses on a supine patient	2.5cm behind the outer canthus of the eye
Low centre slit Townes		To the glabella with a 30 degree caudal angulation

Specialist referral		
Zygomatic arch (jug handles)		Between the angles of the mandible
Comment	Paediatrics: Please see Paediatric Imaging guide. X-rays are often unhelpful in children. Below 5 years, requests are only accepted in cases of major trauma, after examination by a maxillofacial / ENT specialist	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Reporting Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Reporting Radiographer will escalate urgent results to the referrer. The Radiologist / Reporting Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.	
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.	
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.	

Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Reporting Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways.
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Paranasal sinuses
Description	X-ray examination of the paranasal sinuses, undertaken for specialist referrers only.
Clinical Indications allowing Justification / Authorisation	Specialist referral only for assessment of the paranasal sinuses
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of footwear and other radiopaque items from the area to be examined.	
Machine Settings	**Derby Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: OM / OM15: 77 kVp, 12.5 mAs, 110cm, Grid / Bucky	**Burton Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: OM / OM30: 80 kVp, 20 mAs, 110cm, Grid / Bucky
Patient Position	Seated/standing	
Standard Examination	**Projection**	**Centering Point**
	OM	Central ray to pass through the midline between the lower orbital margin's horizontal position. Apex of the sinus should clear the petrous ridge
Additional Views		
Demonstration of the frontal sinuses only	OM 15	Raise chin 15 degrees Horizontal beam
Comment	• Thickened mucosa is a non-specific finding and may occur in asymptomatic patients. • Paediatrics: Please see Paediatric Imaging guide. • Paediatric requests below the age of 5 will only be accepted after discussion between a radiologist / advanced practitioner radiographer and maxillofacial/ENT registrar or above.	
Aftercare	No specific aftercare	

Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting information from QPulse
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Postnasal space
Description	Specialist referral only for assessment of the postnasal space
Clinical Indications allowing Justification / Authorisation	Specialist referral only: ? large adenoids or tonsils
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of footwear and other radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: Lateral facial bones AP: 70 kVp, 8 mAs, 110cm, Grid / Bucky	
Patient Position	Seated/standing	
Standard Examination	**Projection**	**Centering Point**
	Lateral PNS	Position as for C-spine lateral. Centre 1cm below the EAM. Cone to include the frontal sinuses and posterior pharynx. The patient's mouth should be closed – if the PNS is obliterated then repeat film may be required with the patient sniffing
Additional Views		
Comment	The patient's mouth should be closed – if the PNS is obliterated then repeat film may be required with the patient sniffing. Soft tissue of the adenoidal pad should be clearly reproduced. Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales.	

	Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
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Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL

	Local DRL – Awaiting Information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
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Examination	Mandible
Description	Imaging to demonstrate the mandible
Clinical Indications allowing Justification / Authorisation	Trauma, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Check for healing, Position post-manipulation, Position post-surgery, Foreign body. Dental/maxillofacial assessment.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
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Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: PA / Lateral / Oblique: 77 kVp, 13 mAS, 110cm, Grid / Bucky	
Patient Position	Standing / Seated / Supine	
Standard Examination	**Projection**	**Centering Point**
	OPG	OPG
	PA mandible	7.5cm inferior to the EOP with RBL parallel to the floor
Additional Views		
Oblique Mandible projections	Oblique Mandible projections – where OPG not possible and cannot be delayed	Between the angles of the mandible
Comment	Oblique mandibular projections can be used in place of the OPG where an OPG is not obtainable or able to be delayed. Paediatrics: Please see Paediatric Imaging guide. If the patient is under the age of 5 years old requests should be discussed with radiologist / advanced practitioner radiographer.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales.	

	Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL - Awaiting information from Dosewatch

Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Temporomandibular joints (TMJ's) - specialist referral only
Description	X-Ray examination of the TMJ's - specialist referral only
Clinical Indications allowing Justification / Authorisation	Specialist referral. TMJ dysfunction, arthropathy, dislocation/subluxation
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

<table>
<tr><td>Radiation Risk
National Radiological Protection Board Risk Category</td><td colspan="2">Lifetime additional risk of cancer per examination:

Minimal Risk (less than 1 in 100,000)

This represents a very small addition to the 1 in 3 chance we all have of getting cancer.</td></tr>
<tr><td>Pre-procedure / preparation</td><td colspan="2">PATIENTCheck
Risk – benefit information
Removal potential sources of radiopaque artefact from the area to be examined.</td></tr>
<tr><td>Machine Settings</td><td>Derby sites

Pre-programmed exposure, modified according to patient size.</td><td>Burton sites

Standard Setting: 73kVp, 10mAs</td></tr>
<tr><td>Patient Position</td><td colspan="2">Standing or seated</td></tr>
<tr><td rowspan="3">Standard Examination</td><td>Projection</td><td>Centering Point</td></tr>
<tr><td>OPG open mouth</td><td>OPG</td></tr>
<tr><td>OPG closed Mouth</td><td>OPG</td></tr>
<tr><td colspan="3">Additional Views</td></tr>
<tr><td>Comment</td><td colspan="2">x-rays will demonstrate bony abnormality but dysfunction is commonly related to articular disc dysfunction, consider arthrogram or MRI

Paediatrics: Please see Paediatric Imaging guide. Not indicated in Children</td></tr>
<tr><td>Aftercare</td><td colspan="2">No specific aftercare</td></tr>
<tr><td>Results</td><td colspan="2">Results will be provided to the patient by the referrer.

Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales.

Imaging non-medical staff should not discuss results or potential treatment with patients.

In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate.</td></tr>
</table>

	If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.

Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Orbits
Description	Orbital projections
Clinical Indications allowing Justification / Authorisation	Penetrating injury, ? Foreign body, Imaging staff only - Intra-orbital foreign body – prior to MRI scanning
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of . radiopaque items from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: PA / IOFB: 80Vp, AED12.5 mAs, 110 cm, Grid / Bucky DR Direct 80kVp, 8mAS CR 70kVp, AEC or 15mAs	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: PA / IOFB: 70 kVp, 20 mAs, 110 cm, Grid / Bucky.
Patient Position	Standing, Seated or Supine on couch / trolley	
Standard Examination **Penetrating trauma**	**Projection** OM - eyes down	**Centering Point** Central ray to pass through the midline at the lower orbital margin
FB demonstration Pre MRI assessment. Single eyes down view unless metallic IOFB demonstrated.	OM - eyes down	Central ray to pass through the midline at the lower orbital margin
	OM – eyes up – to demonstrate intra-orbital foreign bodies.	Central ray to pass through the midline at the lower orbital margin
Additional Views		
Comment	Ensure the cassette/detector is clean Paediatrics: Please see Paediatric Imaging guide	
Aftercare	No specific aftercare	

Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patients' dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Specialist referral only
Description	X-Ray examination of the Salivary glands
Clinical Indications allowing Justification / Authorisation	Salivary gland calculus
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: Occlusal: Lateral / Lateral Oblique: 77 kVp, 12 mAs, 110 cm, Grid / Bucky Tangential: 72 kVp, 10 mAs, 110 cm Grid / Bucky	**Burton Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: Mandible: Lateral / Lateral Oblique: 70 kVp, AEC, 110 cm, Grid / Bucky Tangential: 70 kVp, AEC, 110 cm Grid / Bucky
Patient Position	Standing or seated	
Standard Examination	**Projection**	**Centering Point**
Submandibular	Occlusal	Affected side
	Lateral – tongue depressed	Angle of mandible
Parotid	Lateral Oblique	Between the angels of the mandible
	Tangential AP	To parotid under examination
Additional Views		
Comment	For further examination consider Ultrasound or Sialography Paediatrics: Please see Paediatric Imaging Guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer.	

	Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless suitably trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting information from Dosewatch.
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Cervical Spine (C-Spine)
Description	Cervical Spine to include from C1-C7/T1 articulation and associated skin borders.
Clinical Indications allowing Justification / Authorisation	Neck injury with pain or neurological deficit, unconscious head injury. (? Fracture/dislocation) Congenital disorders, atlanto-axial subluxation, osteoporotic collapse, osteomyelitis, bone tumour. Non-mechanical pain (persistent pain at rest), inflammatory process (spondylitis, ankyloses spondylitis, discitis) with neurological signs present. NOT routinely indicated for suspected degenerative change alone (in the absence of neurological deficit) – as degenerative changes are common and symptoms often unrelated. Position post-surgery Pre-op evaluation of flexibility where there is known rheumatoid arthritis or ankylosis Spinal stability
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example ‘medico-legal’ reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.

Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.	
Protocolling	Examinations are performed in accordance with this standard protocol.	
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of footwear and other radiopaque items from the area to be examined.	
Machine Settings	**Derby site** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Peg / Oblique: 75 kVp, 5 mAs, 110 cm, direct Lateral: 80 kVp, 8 mAs, 180 cm, direct exposure Trauma Oblique: 80 kVp, 5 mAs, 110 cm, Grid / Bucky Swimmers: 90 kVp, 32 mAs, 110 cm, Grid / Bucky exposure	**Burton site** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Peg / Oblique: 70 kVp, 8 mAs, 110 cm, direct Lateral: 70 kVp, 10 mAs, 180 cm, direct exposure Trauma Oblique: 80 kVp, 12.5 mAs, 110 cm, Grid / Bucky Swimmers: 85 kVp, AEC mAs, 110 cm, Grid / Bucky exposure

Patient Position	Standing, seated or on trolley	
Standard Examination **Trauma**	**Projection**	**Centering Point**
	AP	Cricoid cartilage with 10-15 degree cephalad angulation
	Lateral	2.5cm posteriorly to the angle of the mandible to include C1-C7/T1 articulation. (If the C7/T1 articulation is not visualised 1 attempt at a coned C7/T1 junction to be undertaken, with the shoulders as relaxed as possible, if not CT is more appropriate)
	Odontoid Peg	RBL at approximately 20 degrees, centre through hard palate
Routine evaluation for neurological deficit, inflammatory or pathological causes	AP	Level of C3 (angle: up 10 degrees for AP, down 10 degrees for PA)
	Lateral	Level of C3/4 (angle: 60 degrees transversely, displace film)
Stability/ preoperative assessment	Lateral Flexion	Cricoid cartilage
	Lateral Extension	Cricoid cartilage
Rheumatology specialist referral as for Stability/ preoperative assessment with further	+ Odontoid Peg	RBL at approximately 20 degrees, centre through hard palate
Additional/alternative projections Views		
	Trauma Oblique	Leve of C3/4 angle 45-60 degree transversely – displace cassette/detector
	Swimmers	With grid. Level of sternal notch below midpoint of clavicle
Comment	Rarely useful for spondylotic change without neurological symptoms, signs of metastases or infection. Disc evaluation requires CT/MRI Paediatrics: Please see Paediatric Imaging guide.	

	ED patients: Please see ED Cervical Spine Trauma Management and Imaging Guideline (v3):
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.

Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL (AP and Lateral examination) 30 cGycm2 (August 2019)
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Thoracic spine (T-Spine)
Description	X- Ray examination of the thoracic spine from T1/C7 articulation to T12/L1 articulation.
Clinical Indications allowing Justification / Authorisation	Trauma with localised pain or neurological deficit, Suspected injury with pain or neurological deficit, Osteoporotic collapse, osteomyelitis, bone tumour, Non-mechanical pain (persistent pain at rest) Inflammatory process (inflammatory spondylitis, ankylosing spondylitis, discitis, osteomyelitis) and presence of neurological signs. Scoliosis – specialist referral only Post-operative or fracture follow up – specialist referral only
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the

	provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Very Low Risk (less than 1 in 10,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP: 77 kVp, AEC or 12 mAS, 110cm, Grid / Bucky Lateral: 80 kVp, AEC or 32mAS, 110 cm, Grid / Bucky	**Burton Sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP: 75 kVp, 16 mAS, 110cm, Grid / Bucky Lateral: 75 kVp, 32 mAS, 110 cm, Grid / Bucky.
Patient Position	Supine on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	AP	Midpoint cricoid cartilage and zyphoid process 2.5cm below the sterna notch (High kV technique)
	Lateral	Through the axilla at the level of T6
Additional Views		
Paediatrics – Scheuermann's disease follow up – specialist referral only	Lateral only unless specified	Through the axilla at the level of T6
Scoliosis	Whole spine standing - AP	See separate protocol
	Whole spine lateral Standing	

Comment	Degenerative changes are almost universal from middle age onwards. Imaging not indicated in the absence of pain or neurological deficit in trauma – however there is a low threshold Paediatrics: Please see Paediatric Imaging guide.
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless appropriately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.

Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL (August 2019) Thoracic Spine AP: 100 cGycm2 Thoracic Spine Lateral: 150 cGycm2
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Lumbar Spine (L-Spine)
Description	Lumbar spine to include the T12/L1 articulation and the Lumbosacral junction &SIJ's.
Clinical Indications allowing Justification / Authorisation	Suspected fracture: • Significant trauma with pain or neurological deficit • Osteoporotic collapse • Pathological fracture Scoliosis – specialist referral only Post-operative follow up – specialist referral only Children Only: • Spondylolisthesis • Congenital disorder
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed.

	The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Very Low Risk (less than 1 in 10,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of Radiopaque items from the area to be examined.	
Machine Settings	**Derby site** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP:80 kVp, AEC or 20 mAs, 110cm, Grid / Bucky Lateral: 90 kVp, AEC or 32 mAs, 110 cm, Grid / Bucky L5/S1: 95 kVp, 32 mAs, 110 Grid / Bucky Oblique: 80 kVp, AEC or 32 mAs, 110 cm, Grid / Bucky HB Lateral: 95 kVp, AEC or 45 mAs, 110 cm, Grid / Bucky	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP: 80 kVp, 40 mAs, 110cm, Grid / Bucky Lateral: 80 kVp, 40 mAs, 110 cm, Grid / Bucky L5/S1: 90 kVp, 32 mAs, 110 Grid / Bucky Oblique: 80 kVp, 40 mAs, 110 cm, Grid / Bucky HB Lateral: 80 kVp, 40 mAs, 110 cm, Grid / Bucky
Patient Position	Supine on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	AP	Midline at the level of lower costal margin (SIJ's to be included)

	Lateral	7.5cm anterior to spinous process of L3 (include L5/S1 articulation, if not included, separate L5/S1 articulation required)
Additional Views		
L5/S1 Articulation – advocated only if not visible on the lateral projection.	L5/S1 Articulation	7.5cm anterior to spinous process if L5
Oblique- Specialist referral only	Oblique	Mid clavicular line at the level of the lower costal margin.
Weight bearing Specialist referral only	Weight bearing	AP, Lateral Or obliques.45 degree rotation of patient
Stability – specialist referral only	Flexion/Extension lateral	As per lateral
Comment	Acute back pain - ? disc herniation, sciatica with no adverse features – plain film not routinely advocated. (CT/MRI should be considered after conservative management) Chronic back pain with no pointers for neoplasm or infection – not routinely indicated. Paediatrics: Please see Paediatric Imaging guide. Paediatrics - Scheuermann's disease follow up's specialist referral only, lateral film only unless specified otherwise. Paediatrics – scoliosis – whole spine advocated, see separate protocol.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Reporting Radiographer will escalate the report to the referrer in	

	accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Reporting Radiographer will escalate urgent results to the referrer. The Radiologist / Reporting Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Reporting Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patient's dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL (AP & Lateral) 400cGycm2 (August 2019)
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation.

	Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Sacrum & coccyx
Description	X-ray examination of the Sacrum & coccyx
Clinical Indications allowing Justification / Authorisation	Direct Trauma to sacrum/coccyx region or chronic undiagnosed local pain. *Referrals restricted to orthopaedic consultants due to the lack of clinical benefit and significant radiation exposure for the majority of the films undertaken. If there is clinical concern, orthopaedic referral is advised.*
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed.

	The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Very Low Risk (less than 1 in 10,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of .radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP: Sacrum / Coccyx: 80 kVp, AEC or 20 mAs, 110cm, Grid / Bucky Lateral Sacrum / Coccyx: 90kVp, AEC or 32 mAs, 110cm, Grid / Bucky	
Patient Position	Supine on couch / trolley	
Standard Examination **Sacrum to include the coccyx**	**Projection**	**Centering Point**
	(AP 10 degree cephalad angulation	To the sacrum – include SIJ's (angle used may vary from 5 to 15 degrees)
	Lateral	7.5cm anterior to and at the level of the posterior inferior iliac spine.
Additional Views		
Separate coccygeal imaging	AP10 degree caudal angulation	2.5 cm above the symphysis pubis
	Lateral	To the coccyx
Comment	Orthopaedic Consultant referral only. Paediatrics: Please see Paediatric Imaging guide	

Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch.
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be

	completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Sacroiliac joints (SIJs)
Description	X-ray examination of the Sacro-iliac Joints. Specialist referral only
Clinical Indications allowing Justification / Authorisation	Pain, assessment of sacro-illiac joints
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Very Low Risk (less than 1 in 10,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: PA: 85 kVp, AEC or 32 mAs, 110cm, Grid / Bucky	
Patient Position	Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	PA10 degrees caudal angulation	Midway between PSIS
Additional Views		
Comment	Paediatrics: Please see Paediatric Imaging guide	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to	

	when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within

	the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Pelvis
Description	AP Image in include the whole of the pelvis, and as much of the proximal femora as possible.
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body. Pre-operative assessment.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Very Low Risk (less than 1 in 10,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of . radiopaque items from the area to be examined.	
Machine Settings	**Derby Sites** - RDH Pre-programmed exposure, modified according to patient size. For an average sized adult: Pelvis AP: 80 kVp, AEC or 20 mAs, 110cm, Grid / Bucky CR 70 kVp AEC	
	Burton Sites - QHB Pre-programmed exposure, , modified according to patient size. For an average sized adult: QX2 – AP – Grid / Bucky 80 kVp AEC QX3 – AP – Grid / Bucky 70 kVp AEC.	
Patient Position	Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	AP Pelvis	2.5 cm superiorly to the pubic symphysis, to include iliac crests and proximal femora
Additional Views		
Paediatric	AP & Frog leg lateral	AP pelvis as per adult, Frog leg symphysis pubis centred, collimated to hips
45 degree obliques Judet's acetabular views	Midline at a level half way between the symphysis and the ASIS	Both obliques are performed of the hip in question
Stork / flamingo – specialist referral only	Pubic symphysis subluxation/stability	Pubic symphysis

Comment	Scaling devices should be placed on the image to aid in surgery planning when requested. Paediatrics: Please see Paediatric Imaging guide If requested as post-operative follow up for hip prosthesis it may be appropriate for a low centred pelvis to be undertaken instead to ensure the distal tip of the prosthesis is demonstrated – centring at approximately the lower border of the pubic symphysis.
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.

Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL 220 cGycm2 (August 2019)
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Hip
Description	Hip to include the hip joint and proximal third of the femur
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Post- op follow-up of prosthesis, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Very Low Risk (less than 1 in 10,000)

	This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of radiopaque items from the area to be examined.	
Machine Settings	**Derby Sites** - RDH Pre-programmed exposure, modified according to patient size. For an average sized adult: AP Pelvis: 80 kVp, AEC or20 mAs, 110cm, Grid / Bucky AP Hip: 80kVp, AEC or14 mAs, 110cm, Grid / Bucky AP Hip: 70 kVp, 8 mAs, 110cm, Direct exposure Lateral: Horizontal beam 85 kVp AEC or50 mAs, 110cm, Grid / Bucky Oblique (Judet's): 80 kVp, AEC or32 mAs, 110cm, Grid / Bucky	**Burton sites** - QHB Pre-programmed exposure, modified according to patient size. For an average sized adult: AP Pelvis: 80 kVp, AEC, 110cm, Grid / Bucky AP Hip: 80 kVp, AEC, 110cm, Grid / Bucky Lateral: 100 kVp, 50 mAs, 110cm, Grid / Bucky Oblique (Judet's): 80 kVp, 40 mAs, 110cm, Grid / Bucky.
Patient Position	Seated on couch / trolley	
Standard Examination **Trauma**	**Projection**	**Centering Point**
	AP Pelvis	2.5 cm superior to the pubic symphysis
	Lateral (HBL)	To hip joint
Joint replacement	Low centred pelvis or Hip to include length of prosthesis.	Pubic symphysis
Additional Views		
Paediatric	AP Pelvis & Frog Lateral	2.5 cm superior to the pubic symphysis
AP hip to demonstrate prosthesis, or if anatomy clipped on original AP pelvis	AP Hip - single	2.5 cm inferior to the midpoint of a line between the ASIS and Greater Trochanter
45 degree obliques Judet's acetabular views	Midline at a level half way between the symphysis and the ASIS	Both obliques are performed of the hip in question

Comment	Paediatrics: Please see Paediatric Imaging guide.
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL AP Pelvis: 220 cGycm2 (August 2019)
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Ref: PF 022	Review Due: Annual - Please see QPulse Active until replaced	Document Owner: Clinical Director – Imaging Please see QPulse

University Hospitals of Derby and Burton
NHS Foundation Trust

Examination	Shoulder
Description	X-ray examination of the Shoulder
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body. Loose body
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP:70kVp, 5mAS, 110cm, Direct exposure Axial: 70 kVp, 8 mAs, 110 cm, Direct exposure Lateral (Y view) 70 kVp, 8 mAs Direct exposure	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP: 65 kVp, 5 mAs, 110cm, Direct exposure Axial: 65 kVp, 5 mAs, 110 cm, Direct exposure.
Patient Position	AP: Standing , seated or supine Axial Seated or supine	
Standard Examination Trauma .	**Projection**	**Centering Point**
	True AP – .	Coracoid process
	Axial (alternatively, 'Y' view or Wallace view if axial not possible / unsuccessful)	Head of Humerus
GP & OP (referrals)	AP – .	Coracoid process turned 15 degrees to affected side
Additional Views		
AP Gleno Humeral joint (Mortice view) Specialist referral	AP Turned 30 degrees	Coracoid process turned 30 degrees to affected side
Recurrent dislocation Specialist referral	Westpoint and Stryker notch	

Recurrent dislocation Specialist referral	Stryker notch	
OA (Rheumatology) / Impingement Specialist referral	Coned Angled up ACJ	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advance Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advance Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advance Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.	
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.	
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.	

Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advance Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL – AP Shoulder: ESD 0.5 mGy (DAP = 37 cGyCm2)
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Scapula
Description	X-Ray examinations of the Scapula
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP: 70 kVp, 5 mAs, 110cm, Grid / Bucky Lateral: 70 kVp, 8 mAs, 110 cm, Grid / Bucky	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP: 65 kVp, 5 mAs, 110cm, Grid / Bucky Lateral: 70 kVp, 8 mAS, 110 cm, Grid / Bucky.
Patient Position	Standing or seated	
Standard Examination	**Projection**	**Centering Point**
	AP	Head of humerus with patient turned to demonstrate scapula blade
	Lateral	Boarder of the scapula with Humerus positioned so as not to overly the scapular blade
Additional Views		
Comment	Paediatrics: Please see Paediatric Imaging guide	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales.	

	Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Reporting Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL

	Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Clavicle
Description	Dedicated clavicular projections to demonstrate its entire length
Clinical Indications allowing Justification / Authorisation	Trauma, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Check for healing, , Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal jewellery and other radiopaque items from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP/PA/Axial: 70 kVp, 6 mAs, 110 cm, Direct exposure	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP/PA/Axial: 60 kVp, 6.3 mAs, 110 cm, Direct exposure.
Patient Position	Standing, seated or supine	
Standard Examination **Trauma**	**Projection** AP clavicle (to include joints at both ends)	**Centering Point** Mid clavicle
Orthopaedics follow up	AP Clavicle +/- Half Axial clavicle (helpful in assessing comminuted fractures)	Mid clavicle Mid clavicle with a 30 degree cranial angle
Additional Views		
	Half Axial clavicle	Mid clavicle with a 30 degree cranial angle
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer.	

	Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately clinically trained. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Diagnostic Reference Level	No National DRL Local DRL – Awaiting Information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways.
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Ref: PF 025	Review Due: Annual - Please see QPulse Active until replaced	Document Owner: Clinical Director – Imaging Please see QPulse

University Hospitals of Derby and Burton NHS Foundation Trust

Examination	ACJ
Description	Acromioclavicular joint
Clinical Indications allowing Justification / Authorisation	Subluxation, Dislocation, OM, Foreign Body, Trauma, Arthropathy
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal jewellery and other radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. Coned ACJ or AP Shoulder: Average adult patient 60kVp, 5 mAs. Direct exposure, 110 cm.	
Patient Position	Standing or seated on trolley	
Standard Examination	**Projection**	**Centering Point**
Trauma	True AP shoulder	Coracoid Process
Orthopaedics (& where initial imaging is equivocal with significant clinical concern – DW radiologist/Advanced practitioner radiographer)	Coned ACJ +/- Comparison projections as required (For initial examination, true AP of BOTH joints, inclusive of lateral 1/3 of clavicle. Follow-up affected side only)	ACJ
Additional Views		
ACJ – Weight-bearing	T&O consultant request only Weight bearing AP	ACJ
Comment	. See specialist Orthopaedic & Radiological justification above. Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer.	

	Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patients dose on CRIS, as specified by the employers procedures.
Diagnostic Reference Level	No national DRL Local DRL – awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employers procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Ref: PF 026	Review Due: Annual - Please see QPulse Active until replaced	Document Owner: Clinical Director – Imaging Please see QPulse

University Hospitals of Derby and Burton NHS Foundation Trust

Examination	SCJ's
Description	X-ray examination of the Sterno–clavicular Joints
Clinical Indications allowing Justification / Authorisation	Specialist Referrer only: SCJ pathology, OA, Bony infection, dislocation, trauma ? #, bony lump. ? malignancy
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed.

	The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: PA / Oblique: 70kVp, 10 mAs, 110cm, Direct exposure	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: PA / Oblique: 80 kVp, AEC mAs, 110cm, Direct exposure.
Patient Position	Standing or seated	
Standard Examination After discussion with radiologist – CT may be more appropriate	**Projection** PA – coned to the SCJ's	**Centering Point** Midline at the level of T4
Additional Views		
After discussion with radiologist – CT may be more appropriate	PA obliques at 45 degrees	Level of T4 10cm away from the vertebra on the side raised
Comment	Plain Film examination of limited value CT May be indicated. Paediatrics: Please see Paediatric Imaging guide	
Aftercare	No specific aftercare	

Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting information from Dosewatch.
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Humerus
Description	Upper arm, for mid shaft pathology only
Clinical Indications allowing Justification / Authorisation	Trauma, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Deformity. Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal jewellery and other radiopaque items from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Lateral: 65 kVp, 3 mAs, 110 cm. Direct exposure	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Lateral: 60 kVp, 4 mAs, 110 cm. Direct exposure.
Patient Position	Standing, or seated on chair / trolley	
Standard Examination	**Projection**	**Centering Point**
	AP Humerus	Mid-shaft
	Lateral Humerus	Mid-shaft
Additional Views		
Oblique (T&O)	To see surgical plate in profile	Mid-shaft
Comment	Where clinical pathology is indicated around either joint then dedicated shoulder/ elbow projections would be more appropriate – d/w referring clinician. Paediatrics: Please see Paediatric Imaging guide	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales.	

	Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting Information from Dosewatch

Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Elbow
Description	Projections to demonstrate the elbow joint, the distal third of the humerus and proximal third of the radius and ulna, including the later skin borders.
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body. ? pulled elbow in paediatrics
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed.

	The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal jewellery and other radiopaque items from the area to be examined.	
Machine Settings	**Derby Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Lateral: 60 kVp, 4 mAs, 110 cm, Direct Exposure	**Burton Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Lateral: 60 kVp, 2.5 mAs, 110 cm, Direct Exposure
Patient Position	Seated Paediatrics – Perspex/positioning aid to ensure hand and wrist remain unflexed	
Standard Examination	**Projection**	**Centering Point**
	AP elbow	2.5cm below midpoint between epicondyles
	Lateral Elbow	Lateral epicondyle at 90 degrees
Additional Views		
Radial head	Radial head (to view radial head more clearly)	To radial head
Axial	Axial	Midway between the epicondyles of the humerus through flexed joint

AP projections with arm in flexion (90/90)	To demonstrate both the distal humerus and the proximal radius/ulna articular surfaces in true AP position	2.5cm below midpoint between epicondyles
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately clinically trained to dos o. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.	
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.	
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.	

Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways.
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Examination	Forearm
Description	Forearm projections to include both the wrist and elbow joints in 2 plains.
Clinical Indications allowing Justification / Authorisation	Trauma (fracture/dislocation), arthropathy (Joint pain/Inflammation), bone tumours, osteomyelitis, bone pain, metabolic bone disease Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal jewellery and other radiopaque items from the area to be examined.	
Machine Settings	**Derby Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Lateral: 60 kVp, 5 mAs, 110 cm, Direct exposure	**Burton Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Lateral: 60 kVp, 2.5 mAs, 110 cm, Direct exposure
Patient Position	Seated adjacent to couch / on trolley or bed	
Standard Examination	**Projection**	**Centering Point**
	AP Forearm (to include both Joints in AP position)	Mid-shaft Ulna
	Lateral Forearm (to include both joints, in lateral position)	Mid-shaft Ulna
Additional Views		
FB	Tangential/Oblique	Centre to location of suspected foreign body.
Comment	Where patient unable to perform standard projections - Provide full length Forearm projections ensuring that both joints are visualised in both AP and Lateral orientations Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer.	

	Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patient's dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Scaphoid
Description	Dedicated X-ray projections specifically to demonstrate the scaphoid
Clinical Indications allowing Justification / Authorisation	Trauma, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture. Check for healing, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of items with the potential to cause radiopaque artefact from the area to be examined.	
Machine Settings	**Derby Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / DP Oblique: 52 kVp, 3 mAs, 110cm, Direct exposure. Lateral / Zitta's: 57kVP, 3 mAs, 110 cm, Direct exposure	**Burton Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / DP Oblique: 60 kVp, 1.6 mAs, 110cm, Direct exposure. Lateral / Zitta's: 60kVP, 1.6 mAs, 110 cm, Direct exposure
Patient Position	Seated Paediatrics – Perspex/positioning aid to ensure hand and wrist remain unflexed if required	
Standard Examination	**Projection**	**Centering Point**
Trauma	DP wrist with ulna deviation	Midway between radial and ulnar styloid processes
	Lateral Wrist	Radial styloid process
	DP oblique coned to carpal bones	Ulnar styloid process
	Zitta's (waist/banana/angled 30 degrees) coned	Radio-carpal joint (angled 30 degrees cranially)
Repeats (10-14 / 21 days after initial examination)	As above with DP and lateral views collimated to the carpal bones and with ulna deviation of the wrist, for all views.	scaphoid
Additional Views		

Examinations in plaster	DP and Lateral wrist only	
Comment	Paediatrics: Please see Paediatric Imaging guide	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.	
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.	
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.	
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.	

Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Wrist
Description	X-Ray examination of the wrist to include the distal third of the radius and ulna and metacarpals. Laterally to include the skin borders.
Clinical Indications allowing Justification / Authorisation	Trauma, fracture, dislocation, arthropathy, joint pain, inflammation), bone tumours, osteomyelitis, bone pain, metabolic bone disease Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Oblique: 60 kVp, 1.6 mAs, 110cm, Direct exposure Lateral: 65 kVp, 1.6 mAs, 110cm, Direct exposure (Philips Paediatric Low kVp setting)	
Patient Position	Seated adjacent to the couch / on trolley Paediatrics – Perspex/positioning aid to ensure hand and wrist remains in a neutral position, if required.	
Standard Examination	**Projection**	**Centering Point**
	PA wrist	Midpoint between radial and ulnar styloid process
	Lateral Wrist	Radial styloid process
Paeds - ? Rickets	DP only	Midpoint between radial and ulnar styloid process
Bone Age	See Bone age protocol	See individual examination protocols
GP Hands and Wrist	See hand protocol	
Additional Views		
Oblique	Oblique - demonstrates some fractures of the radius and/or ulna situated close to or involving the carpal articular surfaces	Midpoint between radial and ulnar styloid process

Specialist Orthopaedic Views	Specialist request only	See Orthopaedic view guide.
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients, unless they have the relevant competency. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Reporting Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Reporting Radiographer will escalate urgent results to the referrer. The Radiologist / Reporting Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.	
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.	
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.	
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.	

Reporting	Most Images will be reported by UHDB Radiologist, Reporting Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Hand
Description	To include the surrounding skin surfaces, wrist and the distal radius and ulna.
Clinical Indications allowing Justification / Authorisation	Trauma (Fracture/Dislocation), arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal jewellery and other radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / DP Oblique: 60 kVp1.6 mAs, 110 cm, Direct exposure Lateral: 65 kVp, 1.6 mAs, 110 cm, Direct exposure (Philips Paediatric Low kVp setting)	
Patient Position	Seated adjacent to couch / trolley	
Standard Examination A&E/Orthopaedics/GP	**Projection**	**Centering Point**
	DP Hand (to include distal radius and ulna)	Head of 3rd MC with Hand Flat and in a neutral position
	DP oblique (to include distal radius and ulna)	Head of 5th MC
Additional Views		
A&E – if fracture of MC's seen	Lateral	Head of 2nd MC with the hand pronated/supinated appropriately to demonstrate a true lateral of the affected MC.
Orthopaedics	Lateral – for # MC's	Head of 2nd MC with the hand pronated/supinated appropriately to demonstrate a true lateral of the affected MC.
Rheumatology/GP	DP hands – separate exposures to include wrist	Head of 3rd MC with Hand in a neutral position
	DP hands – 1 exposure	Midway between the heads of the 2nd MC's with hands in neutral position
	For GP plus (Lateral wrists – 1 exposure)	Between the radial styloid processes

Bone age	See separate protocol	
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients, unless they have the relevant competency. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.	
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.	
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.	
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.	

Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Thumb
Description	X-Ray examination of the thumb; to include the skin surface and the base to the base of the thumb metacarpal.
Clinical Indications allowing Justification / Authorisation	Trauma (Fracture/Dislocation/Subluxation), arthropathy (Joint pain/Inflammation), bone tumours, osteomyelitis, bone pain, metabolic bone disease, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby site** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / Lateral: 60 kVp, 1.5 mAs, 110cm, Direct exposure (Philips Paediatric Low kVp setting)	**Burton site** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / Lateral: 60 kVp, 1.6 mAs, 110cm, Direct exposure.
Patient Position	Seated/ on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	DP / AP thumb (to include MC)	Metacarpophalangeal joint
	Lateral (to include MC)	Metacarpophalangeal joint
Additional Views		
Stress views (T&O)	Stress	Metacarpophalangeal joint
T&O Specialist views	Betts	Metacarpophalangeal joint
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales.	

	Imaging non-medical staff should not discuss results or potential treatment with patients, unless they have the relevant competency. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL

	Local DRL – Awaiting Information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Fingers
Description	DP fingers and lateral fingers
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of . radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / Lateral: 60 kVp, 1.6 mAs, 110 cm, Direct exposure (Philips Paediatric Low kVp setting)	
Patient Position	Seated adjacent to couch / on trolley or bed	
Standard Examination	**Projection**	**Centering Point**
	DP Finger (to include MC and an adjacent finger)	Proximal phalangeal joint
	Lateral (to include MC and an adjacent finger)	Proximal phalangeal joint
Additional Views		
Oblique	Oblique- if site of interest close to MCPJ	Proximal phalangeal joint
Penetrated lateral	Penetrated lateral - if two fingers strapped together	Proximal phalangeal joint
Comment	Radiographic positioning aid to only be used where necessary – when ligamentous injury is suspected then this is not indicated Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer.	

	Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways.
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Examination	Femur
Description	Femur
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Lateral: 70 kVp8 mAs, 110 cm, Direct exposure.	
Patient Position	Supine on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	AP –knee up & hip down to include full length of femur and both joints	Mid Shaft
	Lateral – knee up and hip down to include full length of femur and both joints	Mid Shaft
Additional Views		
Paediatric	Full length films – AP and Lateral on one film – where possible	Mid Shaft
T&O – Plate position at special request	Oblique projections	Mid Shaft
?FB – may occasionally require	Tangential – soft tissue exposure	Mid Shaft
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	

Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways.
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Examination	Knee / Patella
Description	Projections of the knee joint to include proximal third of the tibia and fibula and distal third of the Femur.
Clinical Indications allowing Justification / Authorisation	Trauma (Fracture/Dislocation/Deformity) , Arthropathy (inflammation/Joint pain), bone tumours, osteomyelitis, bone pain, metabolic bone disease, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of . radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP / Lateral: 65 kVp, 4 mAs, 110cm, Direct exposure	
Patient Position	Seated on couch / trolley	
Standard Examination **A&E / Trauma**	**Projection**	**Centering Point**
	AP	2.5cm below patella apex
	Lateral (HBL)	2.5cm below and behind apex of patella
Orthopaedics/GP	AP weight-bearing (If requested, place scaling device at the lateral aspect of the knee joint in line with the lateral femoral condyle)	2.5cm below patella apex
	Turned lateral (with scaling device placed at the apex of patella over the age of 40)	2.5cm below and behind apex of patella
Additional Views		
Weight-bearing lateral	Only perform when specifically requested.	2.5cm below and behind apex of patella
If strong suspicion of fracture but not seen on standard views	Oblique	Knee rotated 45 degrees each way, at level of the patella apex
? Loose Body	Intercondylar view (Tunnel)	Immediately below the inferior border of the patella, tube angled 110 degrees or 90 degrees to lower leg

T&O Patello-femoral Arthropathy/Alignment	PA Skyline (axial) Patella	Behind the patella with tube angled 15degrees toward the knee
Comment	Skyline patella not indicated in trauma imaging. Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients, unless clinically competent to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.	
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.	
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.	

Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patient's dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL (DAP) Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways.
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Tibia & Fibula (lower leg)
Description	AP and lateral projections to include both knee and ankle joints in both plains. Only to be used with tibial/fibula shaft pathologies, not to be used for assessing the joints. Skin borders to be included.
Clinical Indications allowing Justification / Authorisation	Trauma, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Deformity. Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of footwear and other radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. AP / Lateral: 65kVp, 4 mAs, 110 cm, Direct exposure	
Patient Position	Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	AP	Mid shaft tibia
	Lateral	Mid shaft tibia
Additional Views		
Oblique Specialist referral from T&O	Oblique – useful for demonstrating orthopaedic hardware in profile.	Mid shaft tibia
Comment	If pathology at the ankle/knee joint is suspected dedicated projections would be more appropriate. Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the	

	referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation.

	Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Ankle
Description	Projections to demonstrate the ankle including the distal two thirds of the tibia and fibula.
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of footwear and other radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. For an average sized adult: Ankle AP / Lateral 60 kVp, 2.5 mAs, 110 cm, Direct exposure	
Patient Position	Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	AP Mortise	Midway between the malleoli – ankle rotated internally to demonstrate the ankle mortise. To include distal 3rd tibia and fibula, and base of the 5th MT.
	Lateral	Medial malleolus – to include distal 3rd tibia and fibula, and base of the 5th MT.
Additional Views		
Specialist referral from T&O	AP	Same centring as mortise, however not internally rotated to demonstrate mortise.
Specialist referral from T&O	Oblique - If strong suspicion of fracture but not seen on standard views	AP with 45 degree internal rotation and 15 degree cephalad angulation
Specialist referral from T&O	Weight bearing - AP and Lateral projections with patient standing	.
Paediatrics – as per adults		
Comment	Foot and Ankle X-rays should not routinely be requested together. Clinical examination should be able to determine foot or ankle following Ottawa rules.	

	Paediatrics: Please see Paediatric Imaging guide.
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless appropriately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.

Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employers procedures.
Diagnostic Reference Level	No National DRL Local DRL – Information awaited from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Foot
Description	Projections of the foot to include the skin margins
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of footwear and other radiopaque items from the area to be examined.	
Machine Settings	**UHBD** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / DP Oblique: 60 kVp, 2.5 mAs, 110 cm, Direct exposure	
Patient Position	Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
A&E/GP - Trauma	DP	Cuboid / Navicular
	DP Oblique	Cuboid / Navicular
?FB	DP	Cuboid / Navicular
	Lateral	Cuboid / Navicular
? Osteomyelitis	DP	Cuboid / Navicular
	DP Oblique	Cuboid / Navicular
	Lateral (only if request indicates calcaneal involvement)	Cuboid / Navicular
Orthopaedic – non-weight-bearing – trauma follow up/post-surgery	DP	Cuboid / Navicular
	DP Oblique	Cuboid / Navicular
	Lateral (only if specifically requested)	Cuboid / Navicular
Orthopaedic – Weight-bearing – pre-op/post-surgery	DP – Weight-bearing	Cuboid / Navicular
	DP Oblique – Weight-bearing	Cuboid / Navicular
	Lateral – Weight-bearing (only if specifically requested)	Cuboid / Navicular

Rheumatology/GP Diagnosed RA review progression	DP Both feet	Cuboid / Navicular
Additional Views		
Comment	Foot and Ankle X-rays should not routinely be requested together. Clinical examination should be able to determine foot or ankle following Ottawa rules. Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.	
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.	

Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch.
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Calcaneum
Description	Calcaneal projections
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

<table>
<tr><td>Radiation Risk
National Radiological Protection Board Risk Category</td><td colspan="2">Lifetime additional risk of cancer per examination:

Negligible Risk (less than 1 in 1000,000)

This represents a very small addition to the 1 in 3 chance we all have of getting cancer.</td></tr>
<tr><td>Pre-procedure / preparation</td><td colspan="2">PATIENTCheck
Risk – benefit information
Removal of footwear and other radiopaque items from the area to be examined.</td></tr>
<tr><td>Machine Settings</td><td colspan="2">UHDB

Pre-programmed exposure, modified according to patient size.

Average Adult:
Lateral: 60 kVp, 3 mAS, 110 cm, direct exposure
Axial: 60 kVp, 6 mAS, 110 cm, direct exposure</td></tr>
<tr><td>Patient Position</td><td colspan="2">Seated on couch / trolley</td></tr>
<tr><td rowspan="3">Standard Examination</td><td>Projection</td><td>Centering Point</td></tr>
<tr><td>Axial</td><td>30 degree caudal vertical 5cm above posterior part of heel</td></tr>
<tr><td>Lateral</td><td>Talocalcaneal articulation – to include entire calcaneum, articulations and surrounding soft tissue margins</td></tr>
<tr><td colspan="3">Additional Views</td></tr>
<tr><td>Paediatrics - ? Sever's disease - lateral views of both calcanei only is necessary.</td><td>B/L lateral projections</td><td>Talocalcaneal articulation</td></tr>
<tr><td>Comment</td><td colspan="2">Imaging is rarely contributory to the diagnosis of calcaneal spur and should only be requested by a specialist where clear value can be added.

Paediatrics: Please see Paediatric Imaging guide.</td></tr>
<tr><td>Aftercare</td><td colspan="2">No specific aftercare</td></tr>
<tr><td>Results</td><td colspan="2">Results will be provided to the patient by the referrer.

Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales.</td></tr>
</table>

	Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employers procedures.
Diagnostic Reference Level	No national DRL Local DRL – awaiting information from dosewatch.

Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employers procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Toes excluding Hallux
Description	X-ray examination of the toes, excluding hallux – see separate protocol
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / DP Oblique: 55 kVp, 2 mAs, 110cm, Direct exposure	**Burton Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / DP Oblique: 60 kVp, 1.6 mAs, 110cm, Direct exposure
Patient Position	Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	DP affected toes including one other and the MT's	Interphalangeal joint
	Oblique affected toes including one other and the MT's	Interphalangeal joint
Additional Views		
Lateral – useful in rare occasions i.e. ?FB	Lateral	Interphalangeal joint
Comment	Forefoot projections advocated if all toes involved. Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales.	

	Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patient's dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL

	Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
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Examination	Hallux (first/Great Toe)
Description	Hallux (first/Great Toe)
Clinical Indications allowing Justification / Authorisation	Trauma, arthropathy, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Dislocation, Deformity. Inflammation, Joint pain, Check for healing, Position post-manipulation, Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
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	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of footwear and other radiopaque items from the area to be examined.	
Machine Settings	**Derby Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / DP Oblique: 50 kVp, 2 mAs, 110 cm, Direct exposure.	**Burton Hospitals** Pre-programmed exposure, modified according to patient size. For an average sized adult: DP / DP Oblique: 60 kVp, 1.6 mAs, 110 cm, Direct exposure.
Patient Position	Seated on couch / trolley / bed or standing	
Standard Examination	**Projection**	**Centering Point**
	DP	1st metatarsophalangeal joint
	Lateral	1st metatarsophalangeal joint
Additional Views		
Oblique If strong suspicion of fracture but not seen on standard views	Oblique	1st metatarsophalangeal joint
Weight-bearing – specialist referral only	Weight-bearing projections as per foot protocol	1st metatarsophalangeal joint
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer.	

	Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Reporting Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
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Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Chest
Description	Chest to include the entire thoracic cavity, preferably to include the root of the neck and lateral skin surfaces as well as the entire lung field.
Clinical Indications allowing Justification / Authorisation	Penetrating or moderate blunt chest trauma, chest pain, SOB asthma, cardiac disease, hypertension, haemoptysis, pleural effusions, pneumonia +/-follow up. central line/NGT check (please see separate NGT protocol for more detail).? Malignancy, ?pneumothorax, post pacemaker/ICD insertion, check lead position, sepsis, immunosuppression, stridor, wheeze, ? abdominal perforation, inhaled FB (see separate protocol), pre-op where there is a relevant clinical reason transplant work up/annual CXR for renal transplant,? Hiatus hernia, epigastric pain, unexplained weight loss, collapse? Cause, confusion, fall? Cause, CVA, hypertension,? aspiration, smoke inhalation, fatigue/malaise, ? PE, increased temperature ? infective focus, ketotic, pulmonary oedema, ischemic heart disease, pre cardiac catheter, Organ harvest/ donation Please note that this is not an exhaustive list.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.

Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.
Pre-procedure / preparation	PATIENT Check Risk – benefit information Removal of radiopaque items from the area to be examined.
Machine Settings	**Pre-programmed exposure, to be modified according to patient size.** For an average sized adult: PA / AP: 90 kVp. 2.5mAS, 180 cm, direct exposure. PA / AP with Grid: 120/125 kVp, 5 mAS,180 cm. Direct or AEC . Very Large Patients only. Lateral: 90/100kVp, 4 mAS, 180 cm, direct exposure or AEC. Supine: 90 kVp. 1.8mAS, 145 cm, direct exposure. (very large patients only) Grid: 120/125 kVp, 3.8 mAS,145 cm.

Patient Position	Standing / Seated / on trolley / on bed.	
Standard Examination	**Projection**	**Centering Point**
	PA erect	Tube angled 5 degrees caudal from horizontal centre to mid-cassette
Additional Views		
AP – where PA not possible	AP erect/supine	Tube angled 5-10 degrees caudal centred to sternal angle
Portable – when patient medically unfit to attend department, ITU/HDU	Portable AP/PA	Tube angled 5-10 degrees caudal centred to sternal angle
Expiration – only when explicitly requested. Not required if pneumothorax demonstrated on inspiratory view.	expiration	Tube angled 5 degrees caudal from horizontal centre to mid-cassette
Lateral – only for specific reasons and agreed with radiologist / advanced practitioner radiographer Or as part of PPM/ICD lead check if specifically requested	Lateral	To axilla at the level of T5
Apical	Apical	Tube angled 30degrees cephalad centre below clavicles
Bases	Cross diaphragmatic/Bases	Centre in the midline to include the lateral chest walls and costaphrenic angles.
NGT – coned projection – if the only clinical reason for imaging	NGT – coned projection	Tube angled 5 degrees caudal from horizontal centre to mid-cassette using grid if large patient CR departmental film
PICC	Collimated PA / AP oblique view of the mediastinum (right side raised 15 degrees) collimated to the mediastinum	Centre to mid-cassette using grid if large patient for CR departmental film
Comment	Paediatrics: Please see Paediatric Imaging guide.	

Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting.

	The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patient's dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL 20 cGycm2 (August 2019)
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Ref: PF 045	Review Due: Annual - Please see QPulse Active until replaced	Document Owner: Clinical Director – Radiology Please see QPulse

University Hospitals of Derby and Burton NHS Foundation Trust

Examination	Sternum
Description	X-ray examination of the sternum
Clinical Indications allowing Justification / Authorisation	Trauma, bone tumours, osteomyelitis, bone pain, metabolic bone disease. Fracture, Deformity. Position post-surgery, Foreign body.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: Lateral: 90 kVp, 12mAS, 110cm, Grid / Bucky Oblique90 kVp, 8 mAs, 110cm, Grid / Bucky	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: Lateral: 95 kVp, 8 mAs, 110cm, Grid / Bucky Oblique: 95 kVp, 8 mAs, 110cm, Grid / Bucky.
Patient Position	Standing (sitting or lying down on trolley for adapted technique)	
Standard Examination	**Projection**	**Centering Point**
	Lateral Sternum	Sternal angle
Additional Views		
PA/AP Chest	Usually requested in conjunction with sternum. Chest X-ray should not be performed unless requested.	Tube angled 5 degrees caudal from horizontal centre to mid-cassette
Comment	Paediatrics: To be discussed with Paediatric Consultant Radiologist	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer.	

	Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients, unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patient's dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting Information From Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Ribs
Description	X-ray examination of the Ribs
Clinical Indications allowing Justification / Authorisation	Metastatic bone disease **Please Note**: Routine obliques for fracture are **not** indicated, the demonstration of rib fractures does not alter the patient's management. PA chest only, except in chest trauma with specialist referral by Speciality Trainee, Associate Specialist or Consultant.
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the

	opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of radiopaque items from the area to be examined.	
Machine Settings	**UHDB** **Pre-programmed exposure, to be modified according to patient size.** For an average sized adult: PA Chest: 90 kVp, 2.5mAS, 180 cm, Direct exposure Upper Oblique: 66 kVp, 3.2 mAs, 110cm, Direct exposure Upper Oblique: 66 kVp, 12 mAs, 110cm, Grid / Bucky AEC Lower Oblique: 70 kVp, 20 mAs, 110cm, Grid / Bucky AEC	
Patient Position	Standing, seated, supine on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	PA Chest	Tube angled 5 degrees caudal from horizontal centre to mid-cassette
Additional Views		
Oblique Ribs	Oblique Ribs – affected side	Mid-clavicular line, collimate to include apices and as much of the lower ribs as possible
Lower rib projection	Lower rib projection	Mid-clavicular line collimate to include the lower ribs and as much of the upper ribs as possible
Comment	Paediatrics: Please see Paediatric Imaging guide.	

	In cases of suspected child abuse oblique rib views are mandatory – see separate protocol
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.

Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch.
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Thoracic Inlet
Description	X-ray examination of the Thoracic Inlet – specialist referral only
Clinical Indications allowing Justification / Authorisation	Cervical rib as cause for neuropathy, compromise of airway
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Very Low Risk (less than 1 in 10,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP: 90 kVp, 2.5 mAS180 cm. Direct exposure Lateral 90/100 kVp, 4 mAs, 110 cm, Grid / Bucky	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: AP: 70 kVp, 5 mAS, 2m, Direct exposure Lateral 75 kVp, AEC mAs, 110 cm, Grid / Bucky.
Patient Position	Standing / Seated	
Standard Examination	**Projection**	**Centering Point**
Compromise of airway	AP	centred around C6/7 to include C-spine region and thoracic inlet/outlet
Cervical rib as cause for neuropathy	AP	centred around C6/7 to include C-spine region and thoracic inlet/outlet
Additional Views		
Lateral – if required	Lateral	C4/5 to include soft tissues anteriorly and posteriorly and the entirety of the cervical and thoracic inlet region.
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	

Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.

Dose Recording	Operators must record the patient's dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Soft Tissue Neck
Description	Lateral X-Ray projection to demonstrate the soft tissues of the neck
Clinical Indications allowing Justification / Authorisation	? Foreign Body
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Minimal Risk (less than 1 in 100,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. Lateral: 70 kVp, 5 mAs, 180 cm, direct exposure.	
Patient Position	Standing or seated	
Standard Examination	**Projection**	**Centering Point**
	Lateral	As per C-spine to demonstrate soft tissues
Additional Views		
For peripheral FB	AP	As per AP C-spine
	Tangential	To demonstrate affected area – annotated according to position. Soft tissue exposure
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist /	

	Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patient's dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL (August 2019) Lateral C Spine: 15 cGycm2
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be

	completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
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Examination	Abdomen/KUB
Description	Abdominal field to include symphysis pubis and diaphragms.
Clinical Indications allowing Authorisation	Blunt or penetrating abdominal trauma, acute abdominal pain (perforation/obstruction), inflammatory bowel disease, haematuria, renal failure, renal colic, foreign body, irreducible hernia, positive urinalysis, absolute constipation, diarrhoea and ingested foreign body. Renal colic after CT renal stone protocol To locate 'missing' IUCD when not found via ultrasound scanning
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the

	provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.	
Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Very Low Risk (less than 1 in 10,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined. Pregnancy check on patients of child bearing capacity as per Employers procedure	
Machine Settings	**Derby sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: Abdomen AP: 85 kVp, AEC or 32 mAs, 110cm, Grid / Bucky Abdomen Lateral Decubitus: 85 kVp, AEC or 30 mAs, 110cm, Grid / Bucky Abdomen Lateral: 90 kVp, AEC or 40 mAs, 110cm, Grid / Bucky	**Burton sites** Pre-programmed exposure, modified according to patient size. For an average sized adult: Abdomen AP: 80 kVp, 40 mAs, 110cm, Grid / Bucky Abdomen Lateral Decubitus: 80 kVp, 40 mAs, 110cm, Grid / Bucky Abdomen Lateral: 80 kVp, 40 mAs, 110cm, Grid / Bucky.
Patient Position	Supine on table or trolley	
Standard Examination	**Projection**	**Centering Point**
	AP - on inspiration	At midpoint of the cassette, lower border at the symphysis pubis
	AP cross kidney – on expiration - to include diaphragms, if not included on first AP	Upper border of radiation field to include diaphragms
Additional Views		

Bladder - Coned projection to demonstrate bladder.	Bladder	5 degree Cephalic angulation
Lateral - To demonstrate position of FB	Lateral	Centred on the location of the potential foreign body
HBL Lateral/ Lateral Decubitus - To exclude perforation if suspected clinically – (FB rectum)	HBL Lateral/ Lateral Decubitus	Midway between lower costal margin and iliac crest in the midline
Erect	Erect	At the midpoint of the cassette, lower border at the symphysis pubis
Comment	. In cases of suspected perforation, perform an erect CXR (patient to be erect for at least 5 mins prior to exposure). • **Not** useful in gastrointestinal haemorrhage. • AXR for constipation not routinely indicated, but can help geriatrician, paediatrician and psychogeriatrician in refractory cases, specialist request only. • Abdominal x-ray/KUB is not indicated in suspected appendicitis. • Paediatrics: Please see Paediatric Imaging guide. Erect or decubitus imaging is performed only at the request a specialist referrer • A baseline KUB will be required when a radio-opaque renal calculus has been demonstrated on CT renal stone protocol but is not visible on the 'scout' view.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless appropriately trained. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist /	

	Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL 250 cGycm2 (August 2019)
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within

	the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Trauma Series
Description	Initial X-Ray assessment of trauma patient – Resuscitation room
Clinical Indications allowing Justification / Authorisation	Major Trauma
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. Where practicable, the patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

<table>
<tr><td>Radiation Risk
National Radiological Protection Board Risk Category</td><td colspan="2">Lifetime additional risk of cancer per examination:

Very Low Risk (less than 1 in 10,000)

This represents a very small addition to the 1 in 3 chance we all have of getting cancer.</td></tr>
<tr><td>Pre-procedure / preparation</td><td colspan="2">PATIENTCheck
Risk – benefit information
Removal potential sources of radiopaque artefact from the area to be examined.</td></tr>
<tr><td rowspan="2">Machine Settings</td><td colspan="2">Derby sites

Pre-programmed exposure, modified according to patient size.

For an average sized adult:

Lateral C Spine: 90 kVp, 5 mAs, 180cm, Direct exposure

Supine Chest: 90 kVp, 2 mAs, 150 cm, Direct Exposure

AP Pelvis: 80 kVp, 20 mAs, 110cm, Grid / Bucky</td></tr>
<tr><td colspan="2">Burton sites

Pre-programmed exposure, modified according to patient size.

For an average sized adult:

Lateral C spine : 70kVp 10 mAs Direct exposure

Supine Chest: 90kVp 2 mAs Direct exposure

AP Pelvis: 85kVp 40 mAs 110cm Grid / Bucky.</td></tr>
<tr><td>Patient Position</td><td colspan="2">Supine on trolley in resuscitation room</td></tr>
<tr><td rowspan="4">Standard Examination

Trauma series</td><td>Projection</td><td>Centering Point</td></tr>
<tr><td>Horizontal Beam Lateral Cervical Spine</td><td rowspan="3">See individual examination protocols</td></tr>
<tr><td>Chest – AP/Supine</td></tr>
<tr><td>Pelvis - AP</td></tr>
<tr><td>Comment</td><td colspan="2">• Stabilise the patient’s condition
• Perform minimum number of radiographs necessary at the initial assessment
• Cervical spine imaging can wait as long as the spine in protected
• Pelvis fractures are often associated with Major blood loss</td></tr>
</table>

	• Consider CT and / or Ultrasound • Paediatrics: Please see Paediatric Imaging guide.
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.

Reporting	Most Images will be reported by UHDB Radiologist, Reporting Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL's (August 2019) Lateral C-Spine: 15 cGycm2 AP Chest: 15 cGycm2 AP Pelvis: 220 cGycm2
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Skeletal survey - myeloma
Description	X-Ray Survey of multiple areas - myeloma
Clinical Indications allowing Justification / Authorisation	Metabolic bone disease, ? myeloma/ extent of myeloma/follow up myeloma
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Low Risk (less than 1 in 1,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined. .	
Machine Settings	Pre-programmed exposure, modified according to patient size. Please see examination specific protocols for each hospital site	
Patient Position	Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	PA/AP chest	Please see examination specific protocols
	AP humeri	
	Lateral humeri	
	AP pelvis (inc. upper femora)	
	AP femora (Knee up)	
	Lateral femora (Knee up)	
	PA Skull	
	Lateral Skull	
	AP C-Spine	
	Lateral C-spine	
	AP T-Spine	
	Lateral T-spine	
	AP L-Spine	
	Lateral L-spine	
Additional Views		
Comment	For metabolic bone disease, biochemical tests usually suffice. If x-rays are needed, attempt to limit to specific areas, e.g. pelvis for osteomalacia, hands for hyperparathyroidism.	

	Consider MRI Paediatrics: Please see Paediatric Imaging guide.
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.

Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL's (August 2019) Chest PA: 10 cGycm2 C- Spine AP: 15 cGycm2 C-Spine Lateral: 15 cGycm2 L-Spine AP: 150 cGycm2 L-Spine Lateral: 250 cGycm2 T- Spine AP: 100 cGycm2 T-Spine Lateral: 150 cGycm2
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways

Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Bone Age
Description	Hand and wrist of LEFT hand (alternatives available)
Clinical Indications allowing Justification / Authorisation	Bone age, growth disturbance in paediatrics (e.g. precocious puberty/ small stature)
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal jewellery and other radiopaque items from the area to be examined.	
Machine Settings	**UHDB** Pre-programmed exposure, modified according to patient size. Average size 10 year old: 60 kVp, 1.6 mAs, 110 cm, Direct exposure (Philips paediatric low kVp setting)	
Patient Position	Seated next to couch / on trolley	
Standard Examination	**Projection**	**Centering Point**
	DP hand and wrist LEFT hand (one exposure)	To include finger tips and distal forearm within the collimated primary beam
Additional Views		
Consultant request only	Knee may be appropriate in neonates D/W radiologist prior to examination	
Comment	Paediatrics: Please see Paediatric Imaging guide. Only appropriate in children	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless appropriately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the	

	referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employers procedures.
Diagnostic Reference Level	No National DRL Local DRL – Awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation.

	Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Ref: PF 055	Review Due: Annual - Please see QPulse Active until replaced	Document Owner: Clinical Director – Imaging Please see QPulse

University Hospitals of Derby and Burton NHS Foundation Trust

Examination	Dental assessment
Description	Intraoral /OPG/ Lateral and AP/PA Cephalometry
Clinical Indications allowing Justification / Authorisation	Dental assessment
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

<table>
<tr><td>Radiation Risk
National Radiological Protection Board Risk Category</td><td colspan="2">Lifetime additional risk of cancer per examination:

Negligible Risk (less than 1 in 1000,000)

This represents a very small addition to the 1 in 3 chance we all have of getting cancer.</td></tr>
<tr><td>Pre-procedure / preparation</td><td colspan="2">PATIENTCheck
Risk – benefit information
Removal of jewellery, piercings and other radiopaque items from the area to be examined.</td></tr>
<tr><td>Machine Settings</td><td colspan="2">UHDB

Pre-programmed exposures

OPG 74kVp 128 mAs

Lateral Ceph 74kVp 4.8mAs

AP/PA Ceph 78kVp 15mAs

Occlusal 70 kVp. 2.56mAs

Peri-apicals 70kVp 2mAs

Bite wings 70kVp 1.6mAs</td></tr>
<tr><td>Patient Position</td><td colspan="2">Seated or Standing</td></tr>
<tr><td rowspan="6">Standard Examination</td><td>Projection</td><td>Centering Point</td></tr>
<tr><td>OPG</td><td rowspan="5">To included area of interest</td></tr>
<tr><td>Lateral Cephlostat</td></tr>
<tr><td>AP/PA Ceph</td></tr>
<tr><td>Occlusal</td></tr>
<tr><td>Peri-apicals</td></tr>
<tr><td></td><td>Bite wings</td></tr>
<tr><td colspan="3">Additional Views</td></tr>
<tr><td>TMJ</td><td>See TMJ’s</td><td></td></tr>
<tr><td>Comment</td><td colspan="2">Either OPG or Lateral Ceph/ both images to be undertaken as per maxfax/dental request.

Intraoral and occlusal imaging are available within the Radiology department at RDH.</td></tr>
</table>

	Paediatrics: Please see Paediatric Imaging guide.
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP. Patients that are referred by a community dentist, who does not have access to PACS, are given a CD containing their image to give to the dental practitioner.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.

Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	The result of examinations for the assessment of dentition is documented by the referrer in the patient's hospital notes / primary care healthcare record. Please see the 'Reporting Agreement' in QPulse.
Diagnostic Reference Level	No National DRL Local DRL – awaiting information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways.
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Ingested foreign body – Derby and Burton Hospitals
Description	Ingested foreign body
Clinical Indications allowing Justification / Authorisation	Ingested foreign body - ? position
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of radiopaque items from the area to be examined.	
Machine Settings	Pre-programmed exposure, modified according to patient size.	
Patient Position	Seated on couch / trolley	
Standard Examination **Imaging as appropriate to patient symptoms and clinical presentation**	**Projection**	**Centering Point**
	AP ST Neck, Chest, Abdomen, Pelvis	**See individual protocols** There needs to be a significant overlap in the films.
Additional Views		
For localisation of affected area & to exclude perforation	Lateral	
For localisation of affected area & to exclude perforation	decubitus	
Comment	Paediatrics – see Paediatric Examination Protocol PPF 051 Ingested / inhaled button batteries, or numerous magnets, should be escalated to a radiologist / reporting radiographer or the referrer as this may constitute a medical emergency	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist /	

	Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Diagnostic Reference Level	cGycm2
Overexposure	Examinations breaching the DRL without obvious cause should be escalated to the senior Radiographer on duty for local investigation. Such investigations are only formally documented if a cause for concern is identified. Where 'significant over exposure' may have occurred, a DATIX incident report should be completed. Please see Imaging procedure for Radiation Incidents and Trust Incident Investigation

	Policy. (Please see CQC Much Greater Than Intended Guidance, Jan 2017)
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-refer
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Inhaled Foreign Body – Derby and Burton Hospitals
Description	CXR for inhaled Foreign body
Clinical Indications allowing Justification / Authorisation	Inhaled foreign body
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of radiopaque items from the area to be examined.	
Machine Settings	Pre-programmed exposure, modified according to patient size.	
Patient Position	Standing/ Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	AP/PA chest inspiration	As per chest including the root of neck
	AP/PA chest expiration	As per Chest including the root of neck
Additional Views		
Lateral – if FB opaque	Lateral Chest	In the mid axillary line to include skin borders anteriorly and posteriorly, including the root of neck
Comment	Paediatrics – see Paediatric Examination Protocol PPF 043 Ingested / inhaled button batteries, or numerous magnets, should be escalated to a radiologist / reporting radiographer or the referrer as this may constitute a medical emergency	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer	

	will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Diagnostic Reference Level	CXR National DRL 20 cGycm2 (August 2019)
Overexposure	Examinations breaching the DRL without obvious cause should be escalated to the senior Radiographer on duty for local investigation. Such investigations are only formally documented if a cause for concern is identified. Where 'significant over exposure' may have occurred, a DATIX incident report should be completed. Please see Imaging procedure for Radiation Incidents and Trust Incident Investigation Policy. (Please see CQC Much Greater Than Intended Guidance, Jan 2017)
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within

	the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-refer
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Leg-length
Description	Leg-length/stitching
Clinical Indications allowing Justification / Authorisation	Leg length discrepancy – specialist referral only
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal of footwear and other radiopaque items from the area to be examined.	
Machine Settings	Pre-programmed exposure, modified according to patient size, for each hospital site depending on equipment available.	
Patient Position	Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	Full leg length/stitching AP	
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway –	

	typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Diagnostic Reference Level	cGycm2
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should

	be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Shunt Series
Description	Series of X-Ray images to assess VP shunt in situ.
Clinical Indications allowing Justification / Authorisation	? shunt break/ blockage /position
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

<table>
<tr><td>Radiation Risk
National Radiological Protection Board Risk Category</td><td colspan="2">Lifetime additional risk of cancer per examination:

Minimal Risk (less than 1 in 100,000)

This represents a very small addition to the 1 in 3 chance we all have of getting cancer.</td></tr>
<tr><td>Pre-procedure / preparation</td><td colspan="2">PATIENTCheck
Risk – benefit information
Removal potential sources of radiopaque artefact from the area to be examined.</td></tr>
<tr><td>Machine Settings</td><td>Derby sites

Pre-programmed exposure, modified according to patient size.

For an average sized adult:

Abdomen AP: 85 kVp, AEC or 32 mAs, 110cm, Grid / Bucky

Chest PA: 90 kVp, AEC or 2.5 mAs, 180 cm, Direct exposure

PA Skull: 80kVp, AEC or 12.5 mAs, 110 cm, Grid / Bucky

Lateral Skull: 75 kVp, AEC or 8 mAs, 110cm Grid / Bucky

CR 70kVp, AEC or 15 mAs</td><td>Burton Sites

Pre-programmed exposure, modified according to patient size.

For an average sized adult:

Abdomen AP: 80 kVp, 40 mAs, 110cm, Grid / Bucky

Chest PA: 90 kVp, 2 mAs, 180 cm, Direct exposure

PA Skull: 70 kVp, 20 mAs, 110 cm, Grid / Bucky

Lateral Skull: 70 kVp, 16 mAs, 110cm Grid / Bucky.</td></tr>
<tr><td>Patient Position</td><td colspan="2">Standing, seated, lying on couch/trolley as appropriate</td></tr>
<tr><td>Standard Examination</td><td>Projection</td><td>Centering Point</td></tr>
<tr><td></td><td>PA/AP Skull (PA if possible)</td><td>To occiput with emerging ray through glabella RBL at 90 degrees to cassette</td></tr>
<tr><td></td><td>Lateral Skull</td><td>HCR midpoint between glabella and occipital protuberance</td></tr>
<tr><td></td><td>PA/AP chest</td><td>Tube angled 5 degrees caudal from horizontal centre to mid-cassette</td></tr>
<tr><td></td><td>AP Abdomen</td><td>At midpoint of the cassette, lower border at the symphysis pubis</td></tr>
<tr><td colspan="3">Additional Views</td></tr>
<tr><td>Comment</td><td colspan="2">Entire length of the shunt should be demonstrated with some overlap; c-spine needs to be included on skull/chest imaging</td></tr>
</table>

	Paediatrics: Please see Paediatric Imaging guide.
Aftercare	No specific aftercare
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.

Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL's (August 2019) Abdomen: 250 cGycm2 Chest: 10 cGycm" Skull PA: ESD – 1.8 mGy (DAP – 135 cGycm2) Skull Lateral: ESD – 1.1 mGy (DAP – 82 cGycm2)
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Whole Spine – Derby and Burton Hospitals
Description	X-Ray examination of the whole Spine / Scoliogram / Stitching
Clinical Indications allowing Justification / Authorisation	Scoliosis, alignment, orthopaedic follow-up (Check for healing, Position post-surgery)
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate.
Justification / Authorisation	Operators may authorise examinations with the above clinical indications. The Clinical Director for the Imaging Business Unit is the Practitioner for all examinations authorised under this protocol. Requests with other clinical indications, not listed above but included in the Royal College of Radiologists iRefer guidelines, must be Justified by a Practitioner.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Very Low Risk (less than 1 in 10,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	PATIENTCheck Risk – benefit information Removal potential sources of radiopaque artefact from the area to be examined. Pregnancy check on patients of child bearing capacity as per Employers procedure	
Machine Settings	Pre-programmed exposure, modified according to patient size. For an average sized adult: 80 kVp 20 mAs 180cm Grid / Bucky	
Patient Position	Seated on couch / trolley	
Standard Examination	**Projection**	**Centering Point**
	AP whole spine (Stitching)	AGFA protocol (equipment specific)
	Lateral whole spine (Stitching)	AGFA protocol (equipment specific)
Additional Views		
Comment	Paediatrics: Please see Paediatric Imaging guide.	
Aftercare	No specific aftercare	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate.	

	If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures). Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist, Advanced Practitioner Radiographer or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patients dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	No national DRL Local DRL – Awaiting Information from Dosewatch
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.

Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways
Signature & Date	This document is managed and signed electronically in the Imaging QPulse system. Please see the QPulse 'document details' record. Hardcopy Versions of this document must be accompanied by the document details report from QPulse.

Examination	Intravenous Urogram
Description	Abdominal field to include symphysis pubis and diaphragm
Clinical Indications allowing Justification / Authorisation	Follow-up of ureteric stricture, post complex surgery, ?drainage
Information relevant to, but insufficient to allow Justification / Authorisation	Specialist referral, research, Radiologist recommendation, 'non-medical examination for example 'medico-legal' reasons.
Contraindications	Patient unable to cooperate with examination requirements. Patient does not consent or withdraws consent. Relevant recent imaging which excludes the suspected pathology and no change in clinical history. Another Imaging modality / technique is more appropriate. Known allergy to iodinated contrast agent
Justification / Authorisation	Requests must be Justified by a Practitioner (Radiologist). Operators (Radiographers and pre FRCR Registrars) may authorise examinations with the above clinical indications as defined in the relevant authorisation protocol. The Clinical Director of the Imaging Business Unit acts as Practitioner for the authorised examinations.
Protocolling	Examinations are performed in accordance with this standard protocol.
Consent	Patients attending for examination are considered to have consented to it being performed. The patient must be given information about the procedure, its risks and what is required of them. In most cases this will be via the provision of the returnable leaflet. The patient must be given the opportunity to ask questions and asked if they are happy to proceed before the examination begins.

Radiation Risk National Radiological Protection Board Risk Category	Lifetime additional risk of cancer per examination: Negligible Risk (less than 1 in 1000,000) This represents a very small addition to the 1 in 3 chance we all have of getting cancer.	
Pre-procedure / preparation	• PATIENTCheck • Risk-benefit information • Changed in to a gown, ensuring no metal items are worn • Complete safety screen for potential reaction to contrast agent • Check if diabetic on metformin • Pregnancy check on patients of child bearing capacity • Correct cannula in situ • Position the patient correctly on the table	
Machine Settings	**Pre-programmed exposure, to be modified according to patient size.** For an average sized adult: AP with Grid/bucky: 75 kVp, 40 mAs,or AEC . 110cm ffd	
Patient Position	Supine on x-ray couch	
Standard Examination	**Projection**	**Centering Point**
	Control-AP on inspiration plus cross kidney on expiration if kidneys not included. 5 mins post inj- AP to include kidneys 20 mins post injection-AP to include bladder Post mict- AP to include bladder	In the midline with the lower border of the cassette at the symph

Additional Views		
	AP cross kidney-on expiration	In the midline, midway between the xiphisternum and the lower costal margin
	AP bladder floor-coned	15 degree caudal angulation, centre in the midline 2.5 cm below ASIS
Comment	For ileal conduit, a post drain image is required instead of a post mict.	
Aftercare	Outpatients - the cannula is removed (minimum 15 minutes post injection) and the patient can get changed and then can leave the department. Inpatients – checked they are feeling well before being sent back to the ward	
Results	Results will be provided to the patient by the referrer. Staff should follow the Imaging Department Protocol to ensure patients are aware of the process to get their results and appropriate timescales. Imaging non-medical staff should not discuss results or potential treatment with patients unless adequately trained to do so. In the event of potentially significant unexpected findings, images should be sent for urgent report. If confirmed, the Radiologist / Advanced Practitioner Radiographer will escalate the report to the referrer in accordance with Imaging department policy. The referrer will then contact the patient as appropriate. If the patient is a GP referral, they should ideally wait whilst Images are reported. The Radiologist / Advanced Practitioner Radiographer will escalate urgent results to the referrer. The Radiologist / Advanced Practitioner Radiographer will advise on changes to when patients should seek their results. The Radiographer will advise the patient of any change, but such discussions should be limited to information on changes to patients care pathway – typically GP patients directed to ED/MIU or more urgent appointment with their GP.	
Image Annotation.	All images should be annotated with a side marker. Ideally this will be a radiopaque marker included within the primary beam at exposure. Post-acquisition markers should be applied where this is not achieved. (Please see separate guidance on non-medical exposures).	

	Annotations indicating non-standard technique or other information should be added as appropriate.
Image Archive	Ensure required Images transfer into the correct record on PACS. Rejected Images should not be archived.
Rejected Images	When rejecting images staff must provide accurate information regarding the reason for rejection in the relevant CR or DR system; so as to facilitate accurate reject analysis.
Reporting	Most Images will be reported by UHDB Radiologist or be out-sourced for reporting. The result of some examinations, e.g. Trauma & Orthopaedic follow-up, is documented by the referrer in the patient's notes. Please see the 'Reporting Agreement' in QPulse.
Dose Recording	Operators must record the patient's dose on CRIS, as specified by the employer's procedures.
Diagnostic Reference Level	National DRL: 14Gy cm2
Overexposure	Examinations breaching the DRL without obvious cause should be regarded as an incident and a DATIX incident report should be completed. Such incidents should be escalated to the senior Radiographer on duty for local investigation. Please see Imaging employer's procedure for Radiation Incidents and Trust Incident Investigation Policy.
Error Reporting	Radiographers have a professional duty to be open about errors. When a significant error is identified whist the patient is still within the department, they should be told, an apology offered and a DATIX incident form completed. If the patient has left the department, a DATIX incident report should be completed and the referrer contacted. Referrers should be informed of the error and advised of their responsibility to inform the patient and apologise on behalf of the Trust. The Trust Duty of Candour process will then be followed if a relevant threshold is considered to have been reached.
Basis for Practice	Royal College of Radiologists i-Refer, local commissioning and agreed referral pathways

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