The Rotherham NHS
NHS Foundation Trust

DEPARTMENT OF CLINICAL RADIOLOGY

EXAMINATION PROTOCOLS IN COMPLIANCE WITH IONISING RADIATION (MEDICAL EXPOSURE) REGULATIONS 2000

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CONTENTS

1. EXAMINATION PROTOCOLS IN COMPLIANCE WITH IONISING RADIATION (MEDICAL EXPOSURE) REGULATIONS 2000

1.1 EVIDENCE BASE FOR THE GUIDELINE.

The Royal College of Radiologists : iRefer.

2. GUIDANCE

These guidelines are designed to assist the Referrer in selecting the most appropriate investigation for the patients clinical condition. It also assists the operator and practitioner in decision making when justifying referrals

This guidance is written in the revised Trust format for 'The policy for the development, monitoring and review of Trust documents' and replaces, (and merges), all previous examination protocols held within the Department of Clinical Radiology.

The examination guidelines held within this document may be authorised by the operator in conjunction with the Department of Clinical Radiology protocol 'Justification and authorisation of medical exposures', providing the valid reasons for examination meets with the criteria listed. Reference will also be made to the Ionising Radiation (Medical Exposure) Regulations 2000. IR(ME)R Policy and procedures for implementation at The Rotherham NHS Foundation Trust.

Risk factors

Incorrect examination and over exposure.

3. DETAILED GUIDANCE

See Appendix 1.

4. SCOPE OF GUIDANCE

These are protocols for each common clinical situation. There are no definite recommendations for each examination, the aim for all examinations should be to obtain maximum information with minimal radiation. It is important to be aware of this potential variation, since the imaging undertaken may not be what the referring clinician expects.

5. IMPLEMENTATION AND DISSEMINATION PLAN

All Radiographic staff will be informed of these guidelines and will follow them in their day to day work. These will be available on the intranet for the referring clinicians and other health care professionals. For operators there are departmental protocols which must be read and followed as part of these guidelines and are kept within the department.

6. MONITORING OF EFFECTIVENESS

An audit of radiographers compliance with “Standard Operating Procedures” is undertaken on an annual basis.

7. RELATED GUIDANCE OR DOCUMENTS

The Royal College of Radiologists : **“iRefer Making the best use of clinical radiology**

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The Department of Clinical Radiology protocol **‘Justification and authorisation of medical exposures’**

DOH (2000) **The Ionising Radiation (Medical Exposure) Regulations 2000**

Ionising Radiation (Medical Exposure) Regulations **2000. IR(ME)R Policy and procedures for implementation at The Rotherham NHS Foundation Trust.** Version Number 4.

Department of Clinical Radiology **“Medico Legal Exposures/Occupational Health”.**

8. FURTHER REVIEW

The guidance will be reviewed every three years unless there is new guidance from the RCR (Royal College of Radiologists) in the interim.

Appendix 1 - Protocols

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Abdomen	• Acute Abdomen pain obstruction/perforation	Y	Supine & Erect CxR perf only	Lateral decubitus (Left side down) following discussion with radiologist		Patient to be erect or laid on left side for 10 mins prior to examination for perforation.
	• Appendicitis	N				
	• Chronic small bowel obstruction	N				
	• Constipation	N				Paeds after discussion with Radiologist IREFER P29 colonic transit preferred
	• Gall Stones	N				
	• GI bleed	N				
	• Haematuria	Y	KUB			
	• Inflammatory bowel disease	Y	Supine			
	• Jaundice	N				
	• Lost IUCD	N				U/s first choice x-ray on radiologist request
	• Marker Studies	Y	Supine			To be taken 5 days after taking capsule following
	• Metastases	N				
	• Palpable mass	N				
	• Pancreatitis Chronic	N				CT advised as it is more sensitive although an x-ray may show calcification
	• Pancreatitis acute	N				
	• Sepsis	N				

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Abdomen (continued)	• Stones in kidney or bladder	Y	Supine KUB			To include diaphragm and symphysis
	• Swallowed foreign body	N				Yes if not passed after 6 days
	• Swallowed foreign body – sharp or poisonous	Y	Supine			Possible daily surveillance
	• Tumour	N				CT/Ultrasound
	• UTI over 40 years	Y	Supine			
	• Volvulus	Y	Supine			
	• Renal colic	Y	Supine			
	• Renal failure	N				
	• Renal Mass	N				
Acromio Clavicular Joints	• Metastases	Y	AP↑25º	Comparison views and stress views following discussion		
	• OA	Y	AP↑25º	"		
	• Osteomalacia	Y	AP↑25º	"		
	• Swelling no trauma	Y	AP↑25º	"		
	• Trauma	Y	AP↑25º	"		

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Ankle	• Bone pain / trauma	Y	AP Mortice lateral			
	• Foreign body	Y	AP/LAT			
	• Inability to weight bear	Y	"			
	• Metastases	Y				
	• OA	Y	"			
	• Osteomalacia	Y	AP/LAT			
	• Osteomyelitis	Y	"			
	• Pain prosthesis	Y	"			
	• Post arthroplasty	Y	"			Fluoro technique for ankle replacement in department protocol
	• Post fixation	Y	"			
	• Primary bone tumour	Y	"			
	• RA	Y	"			
	• Soft tissue swelling	Y	"			
Angiograms-cardiac	• Ischaemic heart disease	Y	As directed by Radiologist performing procedure			Justified by Cardiologist as Practitioner
	• Incompetent Valves	Y	"			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Arthrogram	• Loose prosthesis	Y	Fluoroscopy spot films as directed by radiologist / surgeon			Justified by Radiologist as Practitioner Plain film/bone scan may have been carried out before
	• Infected joints	Y	"			Justified by radiologist/surgeon. MRI+ arthrogram
	• Shoulder instability	Y	"			Justified by radiologist/surgeon. MRI+ arthrogram
	• CDH	Y	"			
	• Injection of contrast media prior to MRI	Y	"			Justified by radiologist/surgeon. MRI+ arthrogram
Calcaneum	• Calcaneal spur/pain •	N				Most patients with heel pain should be managed on the basis of clinical findings without imaging
	• Calcaneum pain in children	Y	Lateral			May indicate Severs disease.
	• Foreign body	Y	Lateral & axial			
	• Trauma	Y	Lateral & axial	Kobes view		Follow department technique for Kobes
	• Plantar Fascitis	N				U/S/MRI

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Cervical Spine	• Cervical rib	Y	AP			
	• Ankylosing Spondylitis	Y	AP Lateral Lateral L5/S1			
	• Headache	N				
	• Neck pain/degenerative/spondylosis	Y	Lateral CI-T1	Flexion/extension		
	• Trauma	Y	Peg, AP, Lateral	Swimmers		Trauma series lateral only in resus If major trauma CT usually carried out instead
	• RA/Atlanto-axial subluxation	Y	Lateral	Flexion/extension		
	• Swallowed or inhaled foreign body	Y	Soft tissue lateral			
	• Thoracic inlet/outlet syndrome	Y	PA chest AP lateral Soft tissue with valsalva			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Chest	• Acute abdomen	Y	AP	Erect CXR-perf		Patient to be erect or laid on left side for 10 mins prior
	• Aortic dissection	Y	PA			
	• MI	Y	PA			
	• Asbestosis	Y	PA			
	• Asthma change in symptoms	Y	PA			
	• CABG	Y	PA			
	• Central chest pain	Y	PA			
	• COPD	Y	PA			
	• Cystic fibrosis	Y	PA			
	• Deep sea diver	Y	PA			
	• Emmigration /immigration	Y	PA			Operators and practitioners to follow departmental guidelines
	• Haemoptysis	Y	PA			
	• Haemothorax	Y	PA			
	• Hypertension	Y	PA			
	• Immigration	Y	PA			
	• Inhaled foreign body	Y	PA			In paeds if high clinical suspicion of FB bronchoscopy is mandatory IREFER P03
	• Insertion of PICC/Hickman/central line	Y	PA/AP			Lateral following discussion with radiology Fluoroscopy for PICC if needed following discussion
	• Lower respiratory tract infection	Y	PA/AP			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Chest cont	• Malignancy	Y	PA			
	• Major trauma	Y	PA/AP			CT usually carried out when multiple injuries
	• Metabolic bone disease	N				Bone Scan
	• Metastases	Y	PA			
	• Myeloma	Y	PA			
	• NG Tube	Y	PA/AP			Follow departmental guidelines
	• Oesophageal perforation	Y	PA			
	• Pacemaker check	Y	PA/AP/lat			Lateral chest to see position of pacing wire
	• Penetrating injury	Y	PA			
	• Pericarditis or effusion	Y	PA			
	• Pleural effusion	Y	PA			
	• Pneumoconiosis	Y	PA			
	• Pneumonia	Y	PA			
	• Pneumothorax	Y	PA			Only inspiration
	• Pre-op	Y	PA			Follow departmental guidelines Routine pre op CXR only indicated if >60yrs and significant cardiorespiratory disease
	• Pulmonary embolism	Y	PA			
	• Rheumatic heart disease	Y	PA			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Chest cont	• Sarcoidosis	Y	PA			
	• Sternal fracture	Y	PA lateral sternum			
	• TB	Y	PA			
	• Upper Respiratory tract infection	N				
	• Valvular cardiac disease	Y	PA			
Clavicle	• Bone pain	Y	AP 20°↑			Follow up AP 20
	• Metastases	Y				
	• Osteomyelitis	Y	"			
	• Ostemalacia	Y	"			
	• Post fixation	Y	"			
	• Primary bone tumour	Y	"			
	• Trauma & FU	Y	"			
Coccyx	• Any	N				Only in specific circumstances discuss with Radiologist

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Contrast Enema	• Large bowel	Y	Fluoroscopy spot films			Justified by Radiologist or Advanced Practitioner As per protocol
	• IBD	Y	"			"
	• PR Bleed	Y	"			"
	• Change in bowel habit	Y	"			"
	• Tumour	Y	"			"
	• IBS	Y	"			"
	• Crohn's	Y	"			"
	• UC	Y	"			"
	• Diverticulitis	Y	"			
	• IDA	Y	"			
	• Recurrence of tumour	Y	"			Justified by Radiologist or Advanced Practitioner As per protocol
	• Anastomotic check	Y	"			WSE. Justified by Radiologist or Advanced Practitioner. As per Protocol
	• Anastomotic Leak	Y	"			Justified by Radiologist or Advanced Practitioner As per protocol
	• Family history	Y	"			Justified by Radiologist or Advanced Practitioner As per protocol

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Contrast enema cont	• Fistula	Y	"			? WSE Justified by Radiologist or Advanced Practitioner. As per Protocol
	• Polyps	Y	"			Justified by Radiologist or Advanced Practitioner As per protocol
	• Polyposis Coli	Y	"			Justified by Radiologist or Advanced Practitioner As per protocol
	• Lower abdomen pain	Y	"			Justified by Radiologist or Advanced Practitioner As per protocol
	• Post operation assessment	Y	"			WSE Justified by Radiologist or Advanced Practitioner As per protocol
	• ?malrotation	Y	"			Justified by Radiologist or Advanced Practitioner As per protocol
	• ?perforation	N				CT
	• Volvulus	N				CT ?WSE
Contrast Swallow Meal	• Difficulty in swallowing	Y	Fluoroscopy spot films as directed by radiologist / surgeon			Justified by Radiologist as Practitioner
	• Hiatus hernia	Y	"			"
	• Reflux	Y	"			"

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Contrast swallow/ meal cont	• Oesophageal perforation	Y	"			"
	• Dyspepsia >45 years old	Y	"			"
	• Tumour	Y	"			"
	• Suspected anastomatic leak	Y	"			Water soluble contrast
	• Previous GI surgery	Y	"			Justified by Radiologist as Practitioner
	• Failed gastroscopy	Y	"			"
	• Refused gastroscopy	Y	"			"
	• Prior to oesophageal stenting	Y	"			Possible water soluble
	• Oesophageal fistula	Y	"			Water soluble Contrast
	• Post operation assessment	Y	"			Water soluble contrast
	• Gastric duodenal ulcer	Y	"			Justified by Radiologist as Practitioner
	• Gastric outlet obstruction	Y	"			"
	• Oesophageal pouch/web	Y	"			Justified by Radiologist as Practitioner
	• Globus	Y	"			Justified by Radiologist as Practitioner

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Cystogram	• Bladder pressure studies	Y	Fluoroscopy spot films as directed by practitioner			Justified by Radiologist as Practitioner
	• Incontinence	Y	"			"
	• Enuresis	Y	"			"
	• Malignancy	Y	"			"
	• Trauma	Y	"			"
	• Haematuria	Y	"			"
	• Fistula	Y	"			"
	• Congenital abnormalities	Y	"			"
	• Post operation	Y	"			"

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Elbow	• Bone pain	Y	AP & Lateral	Radial head view if AP inconclusive or if radial head fracture seen		
	• Foreign body	Y	"			Not plastic or wood
	• OA	Y	"			
	• Osteomalacia	Y	"			
	• Osteomyelitis	Y	"			
	• Painful prosthesis	Y	"			
	• Post arthroplasty	Y	"			
	• Post fixation	Y	AP / Lateral			
	• Primary bone tumour	Y	AP / Lateral			
	• R.A.	Y	AP / Lateral			N.M.
	• Trauma	Y	AP / Lateral	Radial head view if inconclusive or fracture seen		
Embolisation	• Treat proven varicocoele	Y	"			Justified by Radiologist as Practitioner
ERCP	• Jaundice	Y	Fluoroscopy spot films as directed by practitioner			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
ERCP (continued)	• Bile duct obstruction	Y	"			
	• Pancreatitis	Y	"			
	• Malignancy	Y	"			
	• Biliary colic	Y	"			
	• Cholecystitis	Y	"			
	• Post of biliary leak	Y	"			
	• Bile duct stones	Y	"			
	• Gallstones with dilated intra hepatic ducts on ultrasound	N	Right Posterior Oblique			MRCP is first line
	• Gallstones with abnormal liver function tests	N				
	• Acute pancreatitis	N				
	• Pancreatic ascities	N				
	• Dilated bile ducts on CT or US	N				
	• Pancreatic masses or cysts	N				
	• Possible bile duct damage post surgery	N				
	• Chronic abdomen pain	N				
	• Malabsorption	N				

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Facial Bones	• Trauma	Y	OM15	OM10 OM30		Additional views at request of max fax only
Femur	• Bone pain	Y	AP / Lateral			
	• Foreign body	Y	"			Not plastic or wood
	• Metastases	Y	"			
	• Myeloma	Y	"			
	• Osteomalacia	Y	"			
	• Osteomyelitis	Y	"			
	• Post fixation	Y	"			
	• Primary bone tumor	Y	"			
	• Trauma	Y	"			
Finger	• Bone pain	Y	AP / Lateral	Oblique if fracture base of proximal metacarpal		
	• Foreign body	Y	"			Not plastic or wood
	• OA	Y	"			
	• Osteomalacia	Y	"			
	• Osteomyelitis	Y	"			
	• Post fixation	Y	"			
	• RA	Y	"			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Finger cont	• Trauma	Y	"			
	• Foreign body	Y	"			Not plastic or wood
	• Bone pain	Y	DP / Oblique	Lateral standing AP & Lateral if requested		
	• Hallux Valgus	Y	"	"		
Foot	• OA	Y	"			
	• Osteomalacia	Y	"			
	• Osteomyelitis	Y	"			
	• Post fixation	Y	"			
	• Primary bone tumor	Y	"			
	• RA presentation	Y	"			
	• Stress fracture	Y	"			
	• Trauma	Y	"			
Fistulagram / Sinogram	• Discharging fistula	Y	Fluoro spot films as directed by practitioner			Justified by Radiologist as Practitioner
	• Abscess	Y	Fluoro spot films as directed by practitioner			Justified by Radiologist as Practitioner

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Fracture Open Reduction Internal Fixation	• Reduction of fractures	Y	PA / Lateral			If x-rays taken in theatre, check xray in department not necessary unless clinically indicated. Check PACS first for theatre films Radiographer acts as practitioner
	• Positioning of metal work	Y	"			"
Manipulation Under Anaesthetic	• Evaluation and position of fracture during manipulation	Y	PA / Lateral as directed			Radiographer acts as practitioner
Hand	• Bone pain	Y	DP Oblique			
	• Bone age	Y	DP			Follow departmental guidelines
	• Foreign body	Y	DP/LAT			Not plastic or wood
	• Metastases	Y	DP Oblique			
	• Osteomalacia	Y	"			
	• Osteomyelitis	Y	"			
	• Post fixation	Y	"	Lateral		
	• Primary bone tumour	Y	DP Oblique			
	• RA presentation	Y	DP / Oblique			
	• Trauma	Y	DP,Oblique	Lateral view for alignment		

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Hip	• Avascular necrosis	Y	AP Pelvis			
	• Foreign body	Y	AP / Tangential			Not plastic or wood
	• Infection	Y	AP Pelvis			
	• Metastases	Y	AP Pelvis			
	• Myeloma	Y	AP Pelvis			Follow departmental guidelines
	• Osteomalacia	Y	AP Pelvis			
	• Osteomyelitis	Y	AP Pelvis			
	• Pain	Y	AP Pelvis			
	• Post arthroplasty	Y	AP Pelvis			For ?fracture of distal prosthesis –lateral view
	• Trauma	Y	AP/Lateral			To include whole prosthesis
Knee	• Bone pain	Y	AP Standing Lateral	Skyline 30° (Marchants View)		Follow departmental techniques
	• Early OA	Y	AP Standing Lateral	Obliques (trauma)		
	• Foreign body	Y	AP/LAT			Not plastic or wood
	• Loose body	Y	AP/LAT	Tunnel View		
	• Metastases	Y	AP/LAT			
	• OA	Y	"			
	• Osteochondritis	Y	AP Standing Lateral			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Knee cont	• Osteomalacia	Y	"			
	• Osteomyelitis	Y	"			
	• Pain	Y	"			Standing AP
	• Painful prosthesis	Y	"			
	• Post arthroplasty	Y	"			
	• Post fixation	Y	"			
	• Primary bone tumour	Y	"			
	• RA presentation	Y	"			
	• Trauma	Y	AP/HBL	Obliques		Horizontal beam lateral to show lipoheamarthrosis
Leg Length CR	• Leg Shortening	Y	AP full leg length on equipment			Follow departmental guidelines on technique
	• Pre/Post Surgery	Y				
Lumbar Spine	• Acute back pain	N				yes if signs & symptoms >6 weeks
	• Acute back pain with sciatica	N				yes if signs & symptoms >6 weeks msk cats referral for examination and investigations as required
	• Ankylosing spondylitis	Y	AP Lateral Lateral L5/S1			
	• Back pain with HIV	Y	Lateral			
	• Bone tumour primary	Y	AP Lateral			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Lumbar Spine cont	• Chronic back pain <20	Y	Lateral			
	• Chronic back pain >20	N				X-ray only if suspicion and clinical evidence to support osteoporotic collapse
	• Discitis/osteomyelitis	Y	Lateral/AP			
	• Inflammatory/RA	Y	AP/Lateral			When referred by rheumatology
	• Metabolic bone disease	Y	Ap/Lateral			NM / DEXA may also be indicated
	• Metastases	Y	AP / Lateral			
	• Myeloma	Y	Lateral			
	• Osteoporotic collapse	Y	Lateral	AP if fracture		
	• Paediatric bed wetting	Y				Indicated along with abnormal neurology/skeletal and after u/s showing abnormalities
	• Post fixation	Y	AP / Lateral			
	• Saddle anaesthesia	N				MRI may be better investigation follow correct pathway
	• Scoliosis	Y	AP Erect or spine length			See protocol
	• Severe or progressive motor loss	N				MRI may be better investigation follow correct pathway

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Mandible	• Bone pain	Y	OPT	Lateral Obliques		
	• Foreign body	Y	OPT	Lateral		Not plastic or wood
	• Myeloma	Y	opt			Not part of routine skeletal survey only request by cons haematologist
	• Osteomalacia	Y	OPT			
	• Osteomyelitis	Y	OPT	PA Mandible		
	• Post fixation	Y	OPT/PA Mandible			
	• Primary bone tumour	Y	OPT			
	• Tooth abscess	Y	OPT			
	• Trauma	Y	OPT/PA Mandible			
	• Retained roots	Y	OPT	periapicals		
	• Unerupted teeth	Y	OPT	periapicals		
	• Swelling	Y	OPT			
Mastoids	• Any	N				
MCUG	• Proven UTI in children	Y	Fluoro spot films as directed by practitioner			Justified by Radiologist as Practitioner
	• Reflux	Y	"			"
	• Vesical leaks	Y	"			"
	• Vesical fistulas	Y	"			"

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Nasal Bones	• Trauma	N				Yes Assault medico legal - lateral view only
Nephrostomy	• Obstructive hydronephrosis	Y	Patient prone and obliques as directed by radiologist			Justified by Radiologist as Practitioner
Nephrostogram	• Demonstration of patency of tube ? tumour	Y	"			Justified by Radiologist as Practitioner
Orbits	• Metallic foreign body	Y	Collimated OM eyes ↑	Eyes ↓ if Foreign Body present lateral		
	• Trauma	Y	OM			
Parotid Salivary Glands	• Stones	N				Justified by radiologist or dental practitioner

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Patella	• Bone pain	Y	AP / Lateral	Skyline if requested		
	• Trauma	Y	AP / Lateral	Skyline		Skyline Only after fracture ruled out
Pelvis	• Bone pain	Y	AP			
	• Dislocation	Y	AP			
	• Fractured acetabulum	Y	AP	Judet Views?CT		
	• Fracture	Y	AP			
	• Metastases	Y	AP			
	• OA	Y	AP			
	• Osteomalacia	Y	AP			
	• Osteomyelitis	Y	AP			
	• Pagets	Y	AP			
	• Pain	Y	AP			
	• Painful prosthesis	Y	AP			
	• Post arthroplasty	Y	AP			Lateral view of hip to see distal prothesis only
	• Post fixation	Y	AP	Judet views		
	• RA	Y	AP			
	• Trauma	Y	AP			Lateral of hip if fracture neck of femur

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
pH Study See additional protocol	• Malabsorption	Y	Supine			Justified by Radiologist as Practitioner
	• Failure to thrive	Y	Supine			
	• Position of probe	Y	Supine			
Proctograms	• Obstructed defaecation • ?Rectocele • ?Intussusception • ?Eneterocele	Y	Lateral rectum Fluoroscopy spot films as in protocol			Justified by Radiologist or Advanced Practitioner
PTC **+drainage** **±stent**	• Bile duct obstruction • Obstructive jaundice • Hepatic carcinoma	Y Y	Fluoro spot films as directed by radiologist			Justified by Radiologist as Practitioner
PCNL	• Extraction of stones	Y	AP as directed by radiologist			Justified by Radiologist as Practitioner
	• Endothelial resection	Y	"			
Pyelogram Retrograde	• Filling defect	Y	"			Radiographer acts as practitioner in theatre
	• Inadequate demonstration of pelvic/ureteric system on IVU	Y	"			
	• Demonstration of ureters		"			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Radius & Ulna (to include both joints)	• Bone pain	Y	AP / Lateral			
	• Foreign body	Y	AP/Lateral			Not plastic or wood
	• Osteomalacia	Y	AP / Lateral			
	• Osteomyelitis	Y	AP / Lateral			
	• Post fixation	Y	AP / Lateral			
	• Primary bone tumour	Y	AP / Lateral			
	• Trauma	Y	AP / Lateral			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Sacro-iliac Joints	• Ankylosing spondylitis/seronegative arthropathy	Y	PA 20 ↓			Obliques if requested
	• Osteomalacia	Y	PA 20 ↓			
	• Osteomyelitis	Y	PA 20 ↓			
Sacrum	• Long term pain	N				
	• Trauma	Y	Lateral			Other views/CT at request of radiologist
Scaphoid	• Pain	Y	DP,oblique DP + ulna deviation with15-20°,lateral,			Not to be done in POP,
	• Post fixation	Y	"			
	• Trauma	Y	"			Fracture may not be seen before 10 days
Scapula	• Bone pain	Y	AP / Lateral			
	• Trauma	Y	AP / Lateral			
Shunt Series	• Blocked/malfunctioning shunt	Y	Lateral skull and cervical spine. AP cervical spine, CxR+ Abdo			Include whole length of shunt

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Shoulder	• Acute pain – no injury	Y	AP	Stryker/neer lateral/outlet		Follow departmental guidelines on technique
	• Bicepital groove					Follow departmental guidelines on technique
	• Bone scan	Y	AP			
	• Calicification	Y	AP			
	• Dislocation	Y	AP/Axial	Modified Axial Y-view		
	• Foreign body	Y	AP			Not plastic or wood
	• Impingement	Y	Neer Laterals			Follow departmental guidelines on technique
	• OA	Y	AP			
	• Osteomalacia	Y	AP			
	• Osteomyelitis	Y	AP			
	• Painful prosthesis	Y	AP			
	• Post arthroplasty	Y	AP			
	• Primary bone tumour	Y	AP			
	• Trauma	Y	AP/Axial	Y-view		Post reduction : AP/Axial or modified Axial

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Sinuses	• Sinusitis	N				CT
	• Tumour	Y	OM			
Skeletal Survey	• Myeloma	Y				Follow departmental guidelines
	• Metastases	N				
	• Skeletal Dysplasia	Y				Follow departmental guidelines
	• NAI	Y				Follow departmental guidelines
Small Bowel Meal	• Anatomical abnormality	Y	Fluoroscopy spot films as per protocol			Justified by Radiologist or Advanced Practitioner
	• Crohn's disease	Y	"			
	• Weight loss	Y	"			
	• Coeliac disease	Y	"			
	• Obstruction	Y	"			
	• Malabsorption	Y	"			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Skull	• Acoustic neuroma	N				
	• Bony lump	N				U/S is indicated first x-ray only at request of radiologist
	• Dementia	N				
	• Epilepsy	N				
	• Foreign body	Y	PA/ Tangential	Lateral		Not plastic or wood
	• Head injury	N				CT
	• Headache	N				
	• Myeloma	Y	Lateral			
	• Pituitary	N				
	• TIA	N				
	• SOL	N				
	• Vertigo	N				

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Sialogram	• Stones	Y	Fluoroscopy Lateral oblique AP Mandible			Justified by Radiologist as Practitioner
	• Facial swelling	Y	"			
	• Facial pain	Y	"			
	• Malignancy stricture	Y	"			
	• Salivary obstruction	Y	"			
	• Dry mouth	Y	"			
Sternoclavicular joints	• OA	Y	Both obliques			
	• Swelling	Y	Both obliques			
	• Trauma	Y	Both obliques			
Sternum	• Trauma • mets	Y	PA Chest & Lateral			If multi trauma such as chest/spine CT will usually be carried out
Sub-mandibular Gland	• Stones	Y	Lower Occlusal oblique			Usually prior to sialogram
Sub-talar Joints	• Arthrodesis	Y	45° Obliques 15°↑			See department protocols for other views
	• OA	Y	"			
	• RA	Y	"			
	• Trauma	Y	"			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Tibia /Fibula film to include both joints	• Bone pain	Y	AP / Lateral			
	• Foreign body	Y	AP / Lateral			Not plastic or wood
	• Fracture follow-up	Y	AP / Lateral	Taylor-Spatial Frame		
	• Osteomalacia	Y	AP / Lateral			
	• Osteomyelitis	Y	AP/ Lateral			NM
	• Post fixation	Y	AP/Lateral			
	• Primary bone tumour	Y	AP/Lateral			
	• Trauma	Y	AP/ Lateral			
Thoracic Inlet / Outlet	• Cervical rib	Y	AP			
	• Goitre	N				CT
	• Tracheal Deviation	N				CT
Thoracic Spine	• Bone injection	Y	AP / Lateral			
	• Ankylosing Spondylitis	Y	Ap/lateral			
	• Degenerative change	N	AP/Lateral			
	• Myelopathy with no pain	N				Follow musculoskeletal pathway- irefer
	• Myeloma	Y	AP/Lateral			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Thoracic Spine (continued)	• Osteoporotic collapse	Y	"			
	• Pain	N				Unless osteoporotic collapse or other destruction considered
	• Post Dexa scan	Y	"			
	• Post Bone scan	Y	"			
	• RA/inflammatory conditions	Y	AP/Lateral			When referred by rheumatology
	• Scoliosis	Y	AP Erect or spine length			See protocol
	• Tumours	N				MRI
	• Wedge fracture	Y	AP / Lateral			
Thumb	• Bone pain/trauma	Y	AP / Lateral			
	• Foreign body	Y	"			Not plastic or wood
	• OA presentation	Y	AP / Lateral	Bettes Geddes view		See protocol
	• Osteomyelitis	Y	"			
	• Post arthroplasty/fixation	Y	"			
	• Primary bone tumour	Y	"			
	• RA	Y	"			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
TMJ	• Dislocation/clicking	Y	OPT Open & Closed			
	• Trauma	Y	OPT Open & Closed			
Toes	• Bone pain/Trauma	Y	DP Lateral / Oblique			No little toes
	• Foreign body	Y	DP Lateral / Oblique			Not plastic or wood
	• Hallux valgus	Y	DP / Oblique			
	• OA	Y	DP / Oblique			
	• Osteomalacia	Y	DP / Oblique			
	• Osteomyelitis	Y	DP / Oblique			
	• Post fixation	Y	DP Lateral			
	• Primary bone tumour	Y	DP Lateral			
	• RA presentation	Y	DP Lateral			
	• Sesamoid bones	Y	Tangential			
Teeth	• Caries	Y	Occlussal			
	• Unerupted teeth	Y	Peri-apical			
	• Supernumery teeth	Y	OPT			
	• Fracture	Y	Ceph			
TJLB	• For liver biopsy when patients clotting screen results are out of normal range	Y	AP Fluoroscopy			Justified by Radiologist as Practitioner

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Urethrogram	• Urethral stricture	Y	Fluoroscopy spot films as directed by practitioner			Justified by Radiologist as Practitioner
	• Trauma	Y	"			
	• Vesical leak	Y	"			
	• Vesical fistulas	Y	"			
UDS	• Stress incontinence	Y	"			
Ureteric Stent	• Malignant obstruction	Y	AP Fluoroscopy			Justified by Radiologist as Practitioner
	• Ureteric stone	Y	"			
	• Ureteric trauma	Y	"			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Video Fluoroscopy /speech therapy	• Swallowing disorders	Y	Lateral Fluoroscopy			

Examination	Valid Reasons for Examination	Indicated	Standard Views	Additional Views	DRL	Comment
Whole Spine	• Scoliosis	Y	AP Erect or spine length			See protocol
Wrist	• Bone pain	Y	DP Lateral			
	• Carpal tunnel syndrome	Y	DP Lateral			Carpal tunnel view
	• Foreign body	Y	DP Lateral			Not plastic or wood
	• Instability	Y	AP Clenched fist lateral DP ulna deviation DP radial deviation			
	• OA presentation	Y	DP Lateral	Pisi-triquetrial joint view		
	• Osteomalacia	Y	AP Lateral			
	• Osteomelitis	Y	AP Lateral			
	• Painful prosthesis	Y	AP Lateral			
	• Post arthroplasty	Y	AP Lateral			
	• Post fixation	Y	DP Lateral			
	• Primary bone tumour	Y	DP Lateral			
	• RA	Y	DP Lateral			
	• Trauma	Y	DP Lateral			

Appendix 3 Equality Impact Assessement

Document Name:	Procedure - examination protocols in compliance with ionising radiation (medical exposure) regulations 2000	Date of assessment	9th May 2014
Lead Officer:	Mr John Beeston.	Department:	Clinical Radiology

❑ Function	√ Policy	❑ Procedure	❑ Strategy	❑ other, please state

Please provide details of the main aims, objectives and intended outcomes/benefits of the work.
The document provides guidance for staff when undertaking examinations in compliance with Ionising Radiation (Medical Exposure) Regulations 2000.

The following will help you to check if this policy is sensitive to people of different age, ethnicity, gender, disability, religious belief and sexual orientation. It will help you to identify improvements required to ensure that the policy is compliant with equality legislation.

Assessment of possible adverse impact against any group				
Does your policy contain any statements, conditions or requirements which may exclude people from using the procedure who would otherwise meet the criteria under the grounds of:		Response		If yes, please state why and the evidence used in your assessment
		Yes	No	
1	Age?		√	
2	Gender (Male, Female and Transsexual)?		√	
3	Disability (Learning Difficulties/Physical or Sensory Disability)?		√	
4	Race or Ethnicity?		√	
5	Religious, Spiritual Belief?		√	
6	Sexual Orientation?		√	