

Standard Operating Procedures and Exposure Authorisation Protocol

Radiology Department

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October 2018	5.1	T Parker & section managers	Changes to some clinical indications/examinations.
December 2018	5.1.2	T Parker	Endoscopy procedures added
March 2019	5.1.3	T Parker	Addition to abdomen criteria – pre MRI
June 2019	5.1.4	Craig Moore & Trevor Parker	Referral criteria removed from this document.

1 INTRODUCTION

This document is written to ensure that departmental process conforms with the Ionising Radiation (Medical Exposure) Regulations 2017 (IRMER 2017).

2 PURPOSE

This document ensures the Radiology Department is compliant with regulations 6(4) (standard exposure protocols) and 11(5) (authorisation protocol) of the Ionising Radiation (Medical Exposure) Regulations 2017. If a patient attends the Radiology Department for plain film, theatre or fluoroscopic procedures, and the request conforms to the **authorisation criteria** set out in this document, ***the IRMER Operator is entitled to authorise the individual medical exposure detailed in the request.*** IRMER Operators must authorise exposures in accordance with HEYRAD10 Radiology IRMER Procedures.

Protocols

CR & DR:

Exposure protocols are based on the average patient and may vary in different rooms. Each room has an exposure chart on display (including paediatric exposures where appropriate). Judgement based on knowledge and experience should be exercised in changing factors when appropriate e.g. patient size or osteoporosis etc.

Theatre Procedures:

The list of theatre procedures includes the common procedures but is not exhaustive. Some procedures may not be listed because they are uncommon and/or an emergency investigation. In these instances it is accepted that the radiation exposure required by the surgeon is of benefit to the patient and is therefore justified and can be authorised by the operator.

Fluoroscopy Procedures:

Fluoroscopy procedures are authorised in conjunction with a radiologist or a trained specialist radiographer/practitioner.

3 SCOPE

These procedures apply to all IRMER Operators performing radiographic medical exposures.

4 DUTIES

Although every effort has been made to produce a comprehensive list of criteria; it is not exhaustive. If the IRMER Operator is in doubt regarding authorisation, they should seek advice from a radiologist (IRMER Practitioner) or senior radiographer.

If an IRMER Operator authorises an exposure which does not accord with these guidelines, he/she will be in breach of the regulations and will be responsible accordingly.

CHEST	
AUTHORISATION CRITERIA	
<p>Chest pain Acute chest pain/Central chest pain Chest pain ?aortic distension ? Pneumothorax (associated with rib trauma) ? sternal # (lateral sternum also) ? pericarditis ? pleural effusion ? valvular cardiac disease ?oesophageal perforation ?pulmonary embolism (pre/post VQ scan) ? Ca lung / metastases Pre-op anaesthetic chest x-ray – see local guidelines Pneumonia/infection follow up: 10-14 days for in patients (sooner if deteriorating) 4-6 weeks for outpatients Haemoptysis Heart disease/ hypertension change in symptoms COAD change in symptoms/Chest clinic referrals ICU/HDU change in symptoms/ insertion or removal of device NG tube check in line with trust policy and NPSA safety notice ? cervical rib</p> <p><small>*acute abdomen pain ?perforation/ obstruction requires an Erect CXR and AXR (or supine CXR with decubitus AXR. Please note patient needs to be in position for at least 10 minutes to allow air to rise)</small></p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>PA Erect</p> <p>To Include: Soft tissues above first rib Thoracic cage Costophrenic/ cardiophrenic angles Diaphragm</p>	<p>Medial ends of clavicles equidistant from vertebral body. Scapulae clear of lung fields. Arrested inspiration- diaphragm at 9th posterior rib. Thoracic vertebral bodies visualised to T4. Visualisation of carina and retro-cardiac structures. Lung markings demonstrated.</p>
<p>LATERAL</p> <p>To Include: Thoracic spine and posterior ribs Costophrenic angles Diaphragm</p>	<p>Humeri and soft tissues of arms clear of lung fields. Thoracic spine and sternum lateral Arrested inspiration. Lung markings demonstrated throughout</p>

<p>Cardiophrenic angles Sternum</p>	<p>lung. Aortic outline visualised.</p>
<p>AP</p> <p>To include: Soft tissues above first rib Thoracic cage Costophrenic angles Diaphragm</p>	<p>No gross rotation (medial ends of clavicles not overlapping vertebral bodies Arrested inspiration- diaphragm at level of 9th Thoracic vertebral bodies visualised to T4 Visualisation of carina and retro-cardiac structures Lung markings demonstrated to lateral thoracic wall No lordosis (posterior ends of 1st two ribs above the clavicles)</p>
<p>ADDITIONAL PROJECTIONS</p>	
<p>LATERAL AP APICAL AP SUPINE (last resort)</p>	

<p>STERNUM</p>	
<p>AUTHORISATION CRITERIA</p>	
<p>Abnormal isotope bone scan ? infection/ malignancy with relevant history Trauma</p> <p><i>CXR (post #)</i></p>	
<p>ROUTINE PROJECTIONS</p>	<p>ASSESSMENT CRITERIA</p>
<p>LATERAL</p> <p>To Include: Manubrium to xiphisternum</p>	<p>Sternum should be demonstrated free of superimposition by ribs. Manubrium should not be superimposed by soft tissue of shoulder area.</p>

ABDOMEN	
AUTHORISATION CRITERIA	
<p>Acute abdominal pain ? perforation ?obstruction Blunt/ stab injury Inflammatory bowel disease (acute) ?constipation in children/elderly Acute pancreatitis Swallowed FB –sharp or poisonous ? FB not passed seven days post swallowing ? faecal impaction Post op with failure to improve Pre-MRI for patients who lack capacity, to eliminate pain relieving pumps/ baclofen pumps/ spinal stimulators, and renal stents being insitu.</p> <p>CT is preferred modality for Renal Colic</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>SUPINE</p> <p>To Include: Lower border of symphysis pubis (will accept 2 transverse views) Lateral flank stripes Diaphragm</p>	<p>Visually sharp reproduction of bones. Kidney outlines visible. Visually sharp reproduction of bowel gas and contents. Spinous processes of lumbar vertebrae central –indicating no rotation.</p>
<p>LATERAL</p> <p>To Include: Lower border of symphysis pubis Lateral flank stripes Diaphragm</p>	<p>Visually sharp reproduction of bones. Visually sharp reproduction of bowel gas and contents. Spinous processes of lumbar vertebrae central –indicating no rotation.</p>
ADDITIONAL PROJECTIONS	
<p>Lateral Decubitus</p>	

CERVICAL SPINE	
AUTHORISATION CRITERIA	
<p>Trauma – See cervical spine imaging guidelines/flow chart for ED patients follow-up for vertebral #</p> <p>Osteoporotic collapse</p> <p>Osteomyelitis</p> <p>Primary bone tumour</p> <p>Myeloma</p> <p>Metabolic bone disease</p> <p>Osteomalacia</p> <p>Degenerative Changes with “red flag” signs</p> <p>? Arthropathy</p> <p>? Ankylosing spondylitis</p> <p>? Atlanto-axial subluxation</p> <p>Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>LATERAL</p> <p>To Include: C1-C7 should be clearly visible, to include spinous processes and soft tissues</p>	<p>Correct contrast and density to demonstrate bony trabeculae.</p> <p>Angles of mandible should be separated from bodies of upper cervical vertebrae.</p> <p>Edges of the bodies of vertebrae should be superimposed.</p> <p>Facet joints superimposed.</p> <p>Soft tissue demonstrated to include trachea.</p> <p>Visualisation of atlanta-occipital joints.</p> <p>No impingement of occiput on posterior arch of atlas.</p>
<p>AP</p> <p>To Include: Bodies of C3-T1 Transverse processes of C3-T1 and any cervical ribs</p>	<p>The spinous process of each vertebrae should be in the middle of the body to indicate no rotation.</p> <p>Inferior border of symphysis menti should be superimposed on the base of the occipital bone</p>
ADDITIONAL PROJECTIONS	
<p>Swimmers to see c7-t1</p> <p>Peg view – senior request</p> <p>Flexion/Extension</p>	

THORACIC SPINE	
AUTHORISATION CRITERIA	
<p>Trauma and follow-up for vertebral #</p> <p>Osteoporotic collapse</p> <p>Osteomyelitis</p> <p>Primary bone tumour</p> <p>Myeloma</p> <p>Metabolic bone disease</p> <p>Osteomalacia</p> <p>Degenerative Changes with “red flag” signs</p> <p>Neuro deficit</p> <p>Osteomyelitis</p> <p>? Primary bone tumour</p> <p>Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include:</p> <p>Intervertebral disc spaces C7-T1 and T12 –L1</p> <p>Lateral aspects of transverse processes</p>	<p>Correct contrast and density to demonstrate bony trabeculae.</p> <p>Edges of the bodies of vertebrae should be superimposed.</p> <p>Adequate visualisation of pedicles.</p> <p>Spinous processes centralised within the vertebral bodies indicating no rotation.</p>
<p>LATERAL</p> <p>To Include:</p> <p>From T3 – T12</p> <p>Posterior aspect of spinous processes</p> <p>Thoracic aorta</p>	<p>Automography technique used to blur out the overlying ribs.</p> <p>Visualisation of intervertebral disc spaces.</p> <p>Posterior margins of vertebral bodies.</p>
ADDITIONAL PROJECTIONS	
<p>Localised/ coned view of suspect vertebrae</p> <p>Scoliosis series T and L Spine AP Erect – include T1 to S1, cone to include mid clavicles and iliac crest. (See local Full Leg Full Spine (FLFS) procedures)</p>	

LUMBAR SPINE	
AUTHORISATION CRITERIA	
<p>Trauma and follow-up for vertebral # Osteoporotic collapse Osteomyelitis Primary bone tumour Myeloma Metabolic bone disease Osteomalacia Degenerative Changes with “red flag” signs ? primary bone tumour Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: Intervertebral disc spaces T12 –S1 Psoas outlines Sacro-iliac joints</p>	<p>Correct contrast and density to demonstrate bony trabeculae. Edges of the bodies of vertebrae superimposed. All lumbar inter-vertebral disk spaces visualised. Posterior diaphragmatic recesses above L1 expiration.</p>
<p>LATERAL</p> <p>To Include: T12 –S1 Spinous processes Second sacral segment Abdominal aorta</p>	<p>Vertebral bodies lateral in both planes (no double edges). All lumbar inter-vertebral disk spaces visualised. Correct contrast and density to demonstrate bony trabeculae.</p>
ADDITIONAL PROJECTIONS	
<p>Lateral L5-S1 if not visualised on lateral Scoliosis series (see T Spine) Obliques (ortho request only to demonstrate spondylolithesis) Flexion /extension (+ or – weight bearing)</p>	

SI JOINTS	
AUTHORISATION CRITERIA	
<p>? sacroiliitis ? RA ? Uveitis</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>PA Caudal 15</p> <p>To Include: The whole of the SI joints</p>	<p>L5- S1 junction should appear open. Bony detail should be visualised.</p>

COCCYX	
AUTHORISATION CRITERIA	
<p>Acute trauma Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>LATERAL</p> <p>To Include: The entire coccyx</p>	<p>Coccyx should be demonstrated in a true lateral position without rotation (as evidenced by superimposition of visible portions of iliums and ischiums). Spaces between coccygeal segments should be open. Coccygeal segments should be clearly seen.</p>

PELVIS	
AUTHORISATION CRITERIA	
<p>Fall /inability to weight bear ? avascular necrosis ? Total Hip Replacement ? bone tumour ? osteomyelitis ? arthropathy Painful prosthesis Abnormal isotope bone scan Pagets</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: Iliac crests Anterior superior iliac spines Symphysis pubis Demonstrate greater trochanters of both femurs Include full area for N.O.F's and proximal ¼ of femurs ? Dislocation of hip and/or prosthesis - AP only</p> <p>Orthopaedic pre-op requires metal ball on image</p>	<p>No patient rotation - obturator foramen of equal size. Spinous processes of sacrum continuous with a line to the symphysis pubis. Internally rotated femora to show necks undistorted. Bony trabeculae demonstrated with sacrum, lumbar spine, iliac wings and greater trochanters.</p>
<p>LATERAL HIP</p> <p>To include: Entire hip joint Acetabulum Femoral head and neck and upper third of femur</p> <p>DHS/prosthesis must be demonstrated in it's entirety (and cement and reaming marker)</p>	<p>Bony trabeculae of acetabulum, femoral head and shaft. True lateral – greater and lesser trochanters superimposed.</p> <p>No obtrusive 'grid' artefacts (HBL)</p>
ADDITIONAL PROJECTIONS	
<p>Lateral Hip (HBL) ? # Judet (inlet/outlet) views (CT is preferred for reconstructions)</p>	

PAEDIATRIC PELVIS	
ED REQUESTS AUTHORISATION CRITERIA	PROJECTIONS REQUIRED
? Irritable hip	AP Pelvis with legs in neutral (next investigation would be U/S)
? Slipped Epiphyses	<i>AP pelvis with legs in neutral. If AP looks normal – proceed with frog lateral.</i> *Unless age 10- 15 years then need frog lateral as the diagnosis is SUFE until <i>proven otherwise*</i>
? Perth’s	AP pelvis with legs in neutral and frog lateral of both hips as an additional projection
Presents with a limp	AP pelvis with legs in neutral and frog lateral of both hips as an additional projection
Presents following trauma	AP pelvis and horizontal beam lateral of affected hip
GP REQUESTS AUTHORISATION CRITERIA	PROJECTIONS REQUIRED
Clicking hips Cerebral palsy requests – see pathway ?Developmental dysplasia hip	Under 1 year of age U/S is investigation of choice (see local policy) Over 1 year of age – AP pelvis with legs in neutral
POST OP AUTHORISATION CRITERIA	PROJECTIONS REQUIRED
DDH	AP pelvis
SUFE	AP and Frogs Lateral

HIP	
AUTHORISATION CRITERIA	
<p>Trauma ?fracture Orthopaedic Referral Complex history Pain & OA ? bone tumour/metastases ? dislocated hip Painful prosthesis ? avascular necrosis ? osteomyelitis ?arthropathy Abnormal isotope bone scan ? peri-prosthetic #</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: Entire hip joint- including adjacent ilium and ischium bones ? Dislocation of hip and/or prosthesis - AP only</p>	<p>Lesser trochanter should not be visualised. Proximal femur should be seen without fore-shortening of femoral neck. Bony detail should be demonstrated.</p>
<p>LATERAL HIP</p> <p>To include: Entire hip joint Acetabulum Femoral head and neck and upper third of femur</p> <p>DHS/prosthesis must be demonstrated in it's entirety (and cement and reaming marker)</p>	<p>Bony trabeculae of acetabulum, femoral head and shaft. True lateral – greater and lesser trochanters superimposed.</p> <p>No obtrusive 'grid' artefacts (HBL)</p>

FEMUR	
AUTHORISATION CRITERIA	
<p>Trauma ?fracture Follow up fracture (supported by RIS/PACS history) ? bone tumour/metastases ? osteomyelitis Abnormal isotope bone scan ? osteomalacia Myeloma Intramedullary nailing</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: Entire femur –including both knee and hip joint</p>	<p>Neck of femur without foreshortening. Lesser trochanter should not be demonstrated. Patella should superimpose femur Proximal tibia should partially superimpose head of fibula. Bony detail should be visualised.</p>
<p>LATERAL</p> <p>To include: Entire femur –including both hip and knee</p>	<p>Greater and lesser trochanter should be superimposed by femur. Femoral condyles should be partially superimposed. Patella should be demonstrated in profile with the femoro-patellar space open. Bony detail should be visualised.</p>

KNEE	
AUTHORISATION CRITERIA	
<p>Trauma - inability to weight bear Knee pain - locking - restricted movement ? bone tumour ? osteomyelitis ? Osgood-schlatters disease ?effusion ? loose body ? TKR ?arthropathy Painful prosthesis Abnormal isotope bone scan OA – referred via rheumatology clinic</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP Standing for orthopaedic referrals</p> <p>To Include: Knee joint Distal third of femur Proximal third of tibia Fibula head and neck</p>	<p>Visualisation of patella centrally between femoral condyles. Tibio-femoral joints clearly demonstrated. Visualisation of soft tissues. Visualisation of bony trabeculae throughout femur, tibia and fibular.</p>
<p>LATERAL HBL for ED requests</p> <p>To Include: Knee joint Distal third of femur Proximal third of tibia Fibular head and neck patella</p>	<p>Superimposition of femoral condyles and Max 30' flexion. Patella projected clear from femur. Visualisation of tibial intercondylar eminence through femoral condyles. Tibial tuberosity demonstrated. Visualisation of soft tissues. Visualisation of bony trabeculae throughout femur, tibia & fibula.</p>
ADDITIONAL PROJECTIONS	
<p>Specialist orthopaedic views:</p> <p>Skyline patella view Tunnel view (intercondylar)</p>	

TIBIA & FIBULA	
AUTHORISATION CRITERIA	
<p>Trauma - inability to weight bear - bony tenderness</p> <p>Knee pain - locking - restricted movement - Abnormal isotope bone scan</p> <p>Follow up fracture (supported by RIS/PACS history) ? bone tumour ? osteomyelitis ? osteomalacia</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: Entire tibia & fibula including knee and ankle joint</p>	<p>Both ankle and knee joint should be demonstrated without rotation – evidenced by equal spaces on both sides of the knee joint and demonstration of tibio-talar joint space. proximal and distal articulations of the fibula with the tibia should be demonstrated.</p>
<p>LATERAL</p> <p>To Include: Entire tibia & fibula –including both knee and ankle joint</p>	<p>Both ankle and knee joint should be demonstrated in the lateral position - evidenced by tibia partially superimposing proximal fibula and completely superimposing lateral malleolus of distal fibula.</p>
ADDITIONAL PROJECTIONS	
<p>Leg length (see local FLFS procedures)</p>	

ANKLE	
AUTHORISATION CRITERIA	
<p>Trauma malleolar tenderness marked soft tissue swelling Follow up fracture (supported by RIS/PACS history) ? bone tumour ? osteomyelitis ? osteomalacia Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>MORTICE</p> <p>To Include: Distal third of tibia & fibula Medial and lateral malleoli Talus Surrounding soft tissue</p>	<p>Clear visualisation of ankle mortice joint (from tip of medial to tip of lateral malleoli)</p>
<p>LATERAL</p> <p>To Include: Distal third of tib & fib Talo-navicular joint Calcaneus Base of fifth metatarsal must be shown Surrounding soft tissue</p>	<p>Superimposition of medial and lateral edges of talus (no double edge visible). Distal end of fibula projected within posterior third of tibia.</p>
ADDITIONAL PROJECTIONS	
<p>Specilaist orthopaedic views:</p> <p>Weight bearing AP and lateral Stress views Obliques Subtalar views</p>	

FOOT	
AUTHORISATION CRITERIA	
<p>Trauma with bony tenderness Follow up fracture (supported by RIS/PACS history) ? stress # ? bone tumour ? osteomyelitis Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: All tarsal bones Metatarsals Distal tib & fib Calcaneus</p>	<p>Visualisation of the metatarso-phalangeal joint spaces. No overlap of the shafts & heads of the metatarsals. No overlap of phalanges.</p>
<p>DP OBLIQUE</p> <p>To Include: Distal phalanges and soft tissue outline All tarsal bones Metatarsals Distal tib & fib Calcaneus</p>	<p>Visualisation of the metatarso-phalangeal joint spaces. No overlap of the shafts & heads of the metatarsals. No overlap of phalanges.</p>
ADDITIONAL PROJECTIONS	
<p>Specialist orthopaedic referral:</p> <p>Weight bearing DP and lateral AP and DP of hallux (also for trauma)</p>	

CALCANEUM	
AUTHORISATION CRITERIA	
<p>Trauma ? osteomyelitis Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>LATERAL</p> <p>To Include: Whole of calcaneum Surrounding joint spaces Surrounding soft tissue</p>	<p>Exposure adequate to visualise bony trabeculae and soft tissues.</p>
<p>AXIAL</p> <p>To include: Whole of calcaneum Talo-calcaneal joint</p>	<p>Exposure adequate to visualise bony trabeculae from the tip of calcaneus up to the joint space.</p>
ADDITIONAL PROJECTIONS	
<p>Harris view (reversed axial)</p>	

SHOULDER	
AUTHORISATION CRITERIA	
<p>? # following trauma ? bone tumour ? osteomyelitis Abnormal isotope bone scan ? Arthropathy Painful prosthesis</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: Gleno-humeral joint Sterno-clavicular joint Whole of scapula and clavicle Acromio-clavicular joint Surrounding soft tissue</p>	<p>Minimum of distortion of clavicle External rotation of humerus-greater tuberosity shown in profile Scapulae shown en-face Visualisation of bony detail</p>
<p>AXIAL</p> <p>To Include: Proximal third of humerus Gleno-humeral joint Glenoid of scapula Acromio-clavicular joint Surrounding soft tissue</p>	<p>Clear demonstration of gleno-humeral joint. Visually sharp detail of bony trabeculae.</p>
ADDITIONAL PROJECTIONS	
<p>Modified axial</p>	

CLAVICLE	
AUTHORISATION CRITERIA	
<p>? # following trauma ? bone tumour ? osteomyelitis (must be at least 5/6 days after trauma to show/ ap view only) Abnormal isotope bone scan Swelling</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: Entire clavicle, sterno-clavicular and acromio-clavicular joint of affected side</p>	<p>Penetration and density should be such that end of the clavicle is not overexposed, yet the medial end is penetrated and clearly visible The medial half of the clavicle will be superimposed over the thorax Bony detail should be clearly demonstrated.</p>
ADDITIONAL PROJECTIONS	
<p>AP 30 Degree cranial angulation</p>	

STERNO-CLAVICULAR JOINTS	
AUTHORISATION CRITERIA	
<p>Subluxation Dislocation Tumour</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>PA OBLIQUE (BOTH SIDES)</p> <p>To Include: Sternal ends of the clavicles and manubrium</p>	<p>The sterno-clavicular joint nearest the film should be open and clearly demonstrated. The sterno-clavicular joint should be adequately penetrated – bony detail should be clearly visualised.</p>

ACROMIO-CLAVICULAR JOINTS	
AUTHORISATION CRITERIA	
<p>Trauma ?dislocation</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP (NWB) (AP of unaffected if normal)</p> <p>To Include: The entire acromio-clavicular joint of interest</p>	<p>The acromio-clavicular joint of interest should be centered to the film. Penetration and density should be such that the lateral end of the clavicle and the acromion are not over-exposed. Bony trabeculae should be clearly demonstrated.</p>

SCAPULA	
AUTHORISATION CRITERIA	
<p>? # following trauma Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: To include the entire scapula</p>	<p>Bony trabeculae should be seen while the lung detail should be blurred. The medial half of the scapula will be under the thorax. The arm should be at 90 degrees with the body.</p>
<p>LATERAL</p> <p>To Include: The acromion, corocoid process and inferior angle</p>	<p>The gleniod cavity and body should be penetrated and adequately exposed, the body should be separated from the thorax.</p>

HUMERUS	
AUTHORISATION CRITERIA	
<p>? # following trauma Follow up fracture (supported by RIS/PACS history) ? bone tumour ? osteomyelitis (must be at least 5/6 days after trauma to show/ ap view only) Abnormal isotope bone scan Myeloma Painful Prosthesis</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: The soft tissue structures, acromion, glenoid cavity and elbow joint</p>	<p>The cortex and trabeculae should be visualised and clear. The long axis of the arm should be parallel with long axis of the cassette. The greater tuberosity and epicondyles should be seen in profile. The head of the humerus will be slightly superimposed over the glenoid cavity.</p>
<p>LATERAL</p> <p>To Include; The soft tissue structures, acromion, glenoid cavity and elbow joint</p>	<p>The cortex and trabeculae should be visualised and clear. The long axis of the arm should be near parallel with the long axis of the cassette. The lesser tuberosity should be seen in profile near the glenoid cavity. The epicondyles should be almost superimposed, with only slight lack of superior-inferior superimposition due to the diverging rays. The head of the humerus will be slightly superimposed over the glenoid cavity.</p>

ELBOW	
AUTHORISATION CRITERIA	
<p>Trauma- ?effusion ? bone tumour ? osteomyelitis (must be at least 5/6 days after trauma to show/ ap view only) Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: Distal third of humerus Proximal third of radius/ulna Surrounding soft tissue</p>	<p>No rotation of humerus Medial & lateral epicondyles equidistant from the centre of humeral shaft. Visualisation of joint spaces- radio-capitular, ulna-trochlear, proximal radius-ulna.</p>
<p>LATERAL</p> <p>To Include: Distal third of humerus Proximal third of radius and ulna Surrounding soft tissue</p>	<p>Long axis of humerus at 90' to long axis of ulna. Medial and lateral epicondyles superimposed. Visualisation of joint spaces: radio-capitular ulna trochlear</p>
ADDITIONAL PROJECTIONS	
<p>Specialist orthopaedic views:</p> <p>Obliques Radial head</p>	

FOREARM	
AUTHORISATION CRITERIA	
<p>? # following trauma Follow up fracture (supported by RIS/PACS history) ? bone tumour ? osteomyelitis (must be at least 5/6 days after trauma to show/ ap view only) Abnormal isotope bone scan</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>AP</p> <p>To Include: Soft tissue structures The carpals Proximal metacarpals Elbow joint</p>	<p>The cortex and trabeculae should be visualised and clear.</p> <p>The radial tuberosity will be slightly imposed over the ulna.</p> <p>The shafts of the radius and ulna should be separate.</p> <p>All jewellery must be removed.</p>
<p>LATERAL</p> <p>To Include: Soft tissue structures The carpals Proximal metacarpals Elbow joint</p>	<p>The cortex and trabeculae should be visualised and clear.</p> <p>The proximal and distal radius will be somewhat superimposed.</p> <p>The shafts of the radius and ulna will be slightly separated.</p> <p>The elbow should be flexed 90' with the humeral epicondyles superimposed.</p> <p>The trochlear notch should be well demonstrated.</p> <p>The radial tuberosity should be directed anteriorly.</p>

WRIST	
AUTHORISATION CRITERIA	
<p>? # following trauma Follow up fracture (supported by RIS/PACS history) ? bone tumour ? arthropathy ? osteomyelitis (must be at least 5/6 days after trauma to show/ ap view only)</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>DP</p> <p>To Include: Proximal third of metacarpals Distal third radius and ulna Intervening carpal bones Surrounding soft tissue</p>	<p>Visualisation of joints between distal and proximal rows of carpus. Sharp visual detail of bony trabeculae.</p>
<p>LATERAL</p> <p>To Include: Proximal third of metacarpals Distal third of radius and ulna Intervening carpal bones Surrounding soft tissue</p>	<p>Radial and ulna styloid processes superimposed. Sharp visual detail of bony trabeculae.</p>
ADDITIONAL PROJECTIONS	
<p>Specialist orthopaedic views: clenched fists stress views carpal tunnel views</p>	

SCAPHOID	
AUTHORISATION CRITERIA	
<p>? # following trauma Follow up fracture (supported by RIS/PACS history) ? bone tumour Abnormal isotope bone scan Pain in anatomical snuff box Follow up (eg 10 days) post trauma</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>DP</p> <p>To Include: Proximal third of metacarpals Distal third radius and ulna Intervening carpal bones Surrounding soft tissue</p>	<p>Visualisation of joints between distal and proximal rows of carpus. Sharp visual detail of bony trabeculae.</p>
<p>LATERAL</p> <p>To Include: Proximal third of metacarpals Distal third of radius and ulna Intervening carpal bones Surrounding soft tissue</p>	<p>Radial and ulna styloid processes superimposed. Sharp visual detail of bony trabeculae.</p>
<p>ZITTERS (banana view)</p> <p>To Include: Elongated view of scaphoid and surrounding carpal bones.</p>	<p>No other carpal bones overlying the scaphoid. 30 degree elongated scaphoid showing all the poles.</p>
ADDITIONAL PROJECTIONS	
<p>Macro view (magnification technique) NOT ZOOMED</p>	

HAND	
AUTHORISATION CRITERIA	
<p>? # following trauma Follow up fracture (supported by RIS/PACS history) ? bone tumour ? arthropathy ? osteomyelitis (must be at least 5/6 days after trauma to show/ap view only) Abnormal isotope bone scan</p> <p>Bone Age: Growth failure(DP of left hand including wrist/regardless of dominance)</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>DP</p> <p>To Include: Distal third of radius All five phalanges</p>	<p>No overlap of phalanges. Joint spaces clearly demonstrated. Bony trabeculae in distal phalanges and carpal bones demonstrated.</p>
<p>OBLIQUE</p> <p>To Include: Distal third of radius All five phalanges</p>	<p>MCP joints clearly visible. Phalanges slightly bent but not overlapping. Bony trabeculae in distal phalanges and carpal bones demonstrated.</p>
ADDITIONAL PROJECTIONS	
<p>Lateral if major trauma and/or #5th metacarpal. AP and Lateral fingers for trauma. GP referral ?OA DP and oblique Specialist referral ?RA DP only</p>	

SKULL	
AUTHORISATION CRITERIA	
<p>NICE Guidelines indicate CT in most cases.</p> <p>Valid plain film referrals:</p> <p>Penetrating injury Suspected NAI Hydrocephalus ?shunt function Part of shunt series (see shunt series protocol) Following abnormal bone scan as indicated by radiologist</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>PA</p> <p>To Include: The whole of the cranium –especially the frontal and parietal regions</p>	<p>Upper border of the petrous temporal bone superimposed on the infra-orbital margin.</p> <p>Lateral borders of orbits equidistant.</p> <p>Visualise bony detail of cranium.</p> <p>Visually sharp reproduction of the frontal sinus, ethmoid cells, apex of the petrous temporal bones and internal auditory canal.</p> <p>Visually sharp reproduction of the outer/ inner tables of the cranial vault.</p>
<p>LATERAL</p> <p>To Include: The whole of the cranium- frontal, temporal, occipital region of both sides superimposed</p>	<p>Exact superimposition, respectively of the contours of the cranial fossa, the lesser wing of sphenoid, the clinoid process and the external auditory canal, to indicate true lateral position.</p> <p>Visualise bony detail of the cranial vault.</p> <p>Visually sharp reproduction of the outer and inner tables of the cranial vault, floor of the sella and the apex of the petrous temporal bone.</p> <p>Visually sharp reproduction of the vascular channels, the vertex of the skull, sutures and trabecular structure of the cranium.</p>
<p>TOWNES</p>	<p>Dorsum sella projected symmetrically within the foramen magnum.</p>

<p>To Include: The whole of the cranium</p>	<p>Foramen magnum and petrous temporal bones equidistant from the lateral borders of the skull vault. Visualise bony detail of the cranium. Visually sharp reproduction of the outer/ inner tables of the cranial vault.</p>
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FACIAL BONES

AUTHORISATION CRITERIA

Orbital Trauma –blunt injury
Middle 1/3 facial injury
Major facial trauma
Max-Fax Request OM15, OM30

ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
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<p>OM 10</p> <p>To Include: The whole of the facial structures, both orbits, nasal region, maxillae and zygomatic bones</p>	<p>Upper border of petrous temporal bone projected below the border of the maxillary antra. Lateral borders of orbits equidistant from the lateral borders of the skull. Visualisation of bony detail. Visualisation of air-filled sinuses. Visually sharp reproduction of the bony facial and sinus area. The whole of the zygoma region should be visualised.</p>
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<p>OM 30</p> <p>To Include: The whole of the facial structures- partially the lower orbital margins and zygomatic arches</p>	<p>Upper border of petrous temporal bone projected at the level of the angles of the mandible. Lateral borders of the orbit equidistant from the lateral borders of the skull vault. Visualisation of bony detail. Visualisation of air-filled sinuses. Visually sharp reproduction of the bony facial and sinus area.</p>
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ORBITS	
AUTHORISATION CRITERIA	
<p>? Metallic FB (please read pre MRI protocol) ? Metallic FB or ? removed FB ? Glass FB</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>PA</p> <p>To Include: The whole of the orbital area</p>	<p>Upper border of petrous temporal bone projected half way down the maxillary antra. Lateral borders of the orbits equidistant from lateral borders of the skull vault. Visualisation of bony detail. Visually sharp reproduction of the orbital area.</p>

SINUSES	
AUTHORISATION CRITERIA	
<p>Referrals from ENT only unless authorised by a radiologist.</p> <p>? Polyp Chronic sinusitis Clinical indication of recurrent sinusitis ? fluid levels ? malignancy</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>OM (open mouth)</p> <p>To Include: Frontal and maxillary sinuses Demonstrate ethmoids.</p>	<p>Upper border of petrous temporal bone superimposed on the lower border of the maxillary sinus. Lateral borders of the orbits equidistant from the lateral borders of the skull. Visualisation of air-filled sinus. Visualisation of bony detail. Visually sharp reproduction of the sinuses and bony facial area</p>

IVU	
AUTHORISATION CRITERIA	
<p>Renal Stone Disease Analgesic Nephropathy Medullary Sponge Kidneys In conjunction with other imaging methods: Haematuria. These patients need urology referral. Recurrent urinary tract infections Renal tract obstruction Renal trauma Post operative – renal tract.</p>	
ROUTINE PROJECTIONS	ASSESSMENT CRITERIA
<p>Protocols in IVU room at CHH</p>	

THEATRE PROCEDURE LISTS

Mobile Image Intensifier - DSU

PROCEDURE
<p>Lumbar-(Spinal Nerve Root Block/medial branch nerve block/Epidural/Facet joint Injection/SI joint/sympathectomy-lumbar, superior hypogastric plexus block, ganglion impar block)/piriformis injection/pudendal nerve block/psoas compartment block/Radiofrequency ablation(RF)</p> <p>Thoracic-paravertebral/intercostal nerve block/epidural/sympathectomy/suprascapular nerve block/RF</p>
AUTHORISATION CRITERIA
<p>Lumbosacral pain syndromes, thoracic pain syndromes(including somatic, neuropathic and visceral origin)</p>
PROJECTIONS
<p><u>Patient prone:</u></p> <p>AP</p> <p>LATERAL</p> <p>OBLIQUE</p> <p>ANGULATION*-cranial or caudal to square the vertebral endplates where necessary</p> <p>NB*: Angles vary due to patient anatomy and pathology</p>

PROCEDURE
<p>JOINT INJECTIONS</p> <p>e.g. HIP</p>
AUTHORISATION CRITERIA
<p>Bursa</p> <p>Pain due to Arthritis</p>
PROJECTIONS
<p><u>Pt Supine:</u></p> <p>PA</p>

PROCEDURE
Cervical- (medial branch nerve block/facet joint/epidural/stellate ganglion/RF)
AUTHORISATION CRITERIA
<p>Cervical pain, occipital headache, sympathetic mediated pain</p>
PROJECTIONS
<p><u>Pt prone/lateral/supine:</u></p> <p>Position varies (operator dependent)*</p> <p>AP.</p> <p>LATERAL</p> <p>oblique</p> <p>NB* angles vary due to patient anatomy and pathology</p>

PROCEDURE
Trigeminal Nerve Rhizotomy
AUTHORISATION CRITERIA
<p>Neuralgia</p>
PROJECTIONS
<p><u>Pt Supine:</u></p> <p>MODIFIED SMV C-arm angled 25-30 degree cranially, 15 degree toward affected side until the foramen ovale visualised</p> <p>LATERAL</p> <p>Additional Views:</p> <p>AP (petrous ridge at level of lower orbital margin)</p>

PROCEDURE
Sacral Nerve Stimulation
AUTHORISATION CRITERIA
Fecal incontinence and overactive bladder
PROJECTIONS
<u>Pt Prone</u> PA Lateral

PROCEDURE
Stent insertion/ stent removal/ stent change.
AUTHORISATION CRITERIA
Kidney stones/obstruction of the urine flow from the kidney.
PROJECTIONS
<u>Pt Supine</u> AP

Mobile Image Intensifier - Orthopaedics

PROCEDURE
Open Reduction Internal/External Fixation
AUTHORISATION CRITERIA
<p>Reduction of fractures. Positioning of metal work to check position and length of screws and to ensure they are not in the joint space before closure.</p>
STANDARD PROJECTIONS
<p><u>Patient supine:</u></p> <p>AP/PA</p> <p>Lateral</p> <p>As directed by the Orthopaedic Surgeon</p> <p>ADDITIONAL INFORMATION</p> <p>When X-rays are taken in the Orthopaedic Operating Theatre there is no need for check X-rays in the department unless there is a clinical reason to do so. Images required are sent to PACS from the MII's used in theatre.</p> <p>IM nailing/Illizarov frames will need departmental check x-rays in the majority of cases as the whole length of the bone needs to be visualised post operatively.</p>

PROCEDURE
Manipulation Under Anaesthetic
AUTHORISATION CRITERIA
To evaluate position of fracture during manipulation
STANDARD PROJECTIONS
<p><u>Pt Supine:</u></p> <p>AP</p> <p>Lateral</p> <p>As directed by the Orthopaedic Surgeon</p> <p>ADDITIONAL INFORMATION</p> <p>Often requires images taken pre and post cast application.</p> <p>When X-rays are taken in the Orthopaedic Operating Theatre there is no need for check X-rays in the department unless there is a clinical reason to do so. Images required are sent to PACS from the MII's used in theatre.</p>

PROCEDURE
Removal of Metal Work/Foreign Bodies (FBD)
AUTHORISATION CRITERIA
Location of broken screws/plates/foreign bodies/lost swabs
STANDARD PROJECTIONS
<p><u>Pt Supine</u> (possibly prone if FBD removal)</p> <p>AP/PA</p> <p>Lateral</p> <p>ADDITIONAL PROJECTIONS</p> <p>Oblique</p> <p>As directed by the surgeon</p> <p>Images required are sent to PACS from the MII's used in theatre.</p>

Mobile Image Intensifier - Cardiology

PROCEDURE
Temporary pacemakers
AUTHORISATION CRITERIA
Complete/partial heart block, arrhythmia, asystole.
STANDARD PROJECTIONS
<u>Pt Supine</u>
PA
ADDITIONAL PROJECTIONS
As directed by the Cardiologist.
ADDITIONAL INFORMATION
In an emergency may be done out of theatre e.g. in the intensive care unit/resuscitation suite in accident and emergency.
Mobile chest x-ray usually post procedure

Mobile Image Intensifier – General/Vascular Surgery

PROCEDURE
Hickman Line/Portacath insertion/Longline check
AUTHORISATION CRITERIA
Difficulty in positioning of line, e.g. portacath, hickman line, for permanent IV access.
STANDARD PROJECTIONS
<p><u>Pt Supine</u></p> <p>PA</p> <p>ADDITIONAL PROJECTIONS</p> <p>As directed by the surgeon</p> <p>ADDITIONAL INFORMATION</p> <p>Mobile chest x-ray usually post procedure.</p>
PROCEDURE
On table Angiography – peripheral vascular
AUTHORISATION CRITERIA
Trauma to check vascular flow, angioplasty, graft patency, embolism.
STANDARD PROJECTIONS
<p><u>Pt Supine</u></p> <p>PA</p> <p>ADDITIONAL PROJECTIONS</p> <p>As directed by the surgeon</p> <p>ADDITIONAL INFORMATION</p> <p>May require use of subtraction.</p>

PROCEDURE
On Table Cholangiogram
AUTHORISATION CRITERIA
? presence of stones in biliary duct.
STANDARD PROJECTIONS
<p><u>Pt Supine</u></p> <p>PA</p> <p>ADDITIONAL PROJECTIONS</p> <p>As directed by the surgeon</p> <p>ADDITIONAL INFORMATION</p>

PROCEDURE
Sacral Nerve Stimulation
AUTHORISATION CRITERIA
Fecal incontinence and overactive bladder
PROJECTIONS
<p><u>Pt Prone</u></p> <p>PA</p> <p>Lateral</p>

Mobile Image Intensifier – Urology

PROCEDURE
Retrograde pyelogram/ Cystoscopy/ On table Cystogram
AUTHORISATION CRITERIA
Ureteric reflux, 'STING' (subureteral transurethral injection) procedure, stones. Disorders of urethra including posterior urethral valves. Position check for stents. Abnormalities of duplex systems.
STANDARD PROJECTIONS
<u>Pt Supine</u> PA ADDITIONAL PROJECTIONS As directed by the surgeon ADDITIONAL INFORMATION 'STING' procedure done on paediatrics.

PROCEDURE
Stent insertion/ stent removal/ stent change.
AUTHORISATION CRITERIA
Kidney stones/obstruction of the urine flow from the kidney.
PROJECTIONS
<u>Pt Supine</u> AP

Mobile Image Intensifier – Neurosurgery

PROCEDURE
Any instrumented spinal surgery (including anterior cervical plates, corpectomy cages, arthroplasty, interspinous distraction devices, vertebroplasty)
AUTHORISATION CRITERIA
To ascertain correct vertebral level prior and during surgery. Deformity correction (ie checking the fracture-dislocation has corrected, or the spondylolisthesis has reduced)
STANDARD PROJECTIONS
<p><u>C-spine: Pt prone or supine</u></p> <p>Lateral</p> <p>ADDITIONAL PROJECTIONS</p> <p>AP/PA</p> <p><u>T-spine; Pt prone or lateral</u></p> <p>AP</p> <p>Lateral</p> <p>ADDITIONAL PROJECTIONS</p> <p><u>L-spine: Pt prone</u></p> <p>AP</p> <p>Lateral</p> <p>ADDITIONAL PROJECTIONS</p>

PROCEDURE
Transsphenoidal Adenectomy
AUTHORISATION CRITERIA
Removal of tumour from pituitary gland
STANDARD PROJECTIONS
<p><u>Pt supine</u></p> <p>Lateral</p> <p>ADDITIONAL PROJECTIONS</p> <p>As directed by the surgeon</p> <p>ADDITIONAL INFORMATION</p>

PROCEDURE
Radiofrequency Rhizotomy
AUTHORISATION CRITERIA
Trigeminal Neuralgia
STANDARD PROJECTIONS
<p><u>Pt supine</u></p> <p>Lateral</p> <p>AP</p> <p>Modified sub-mental view (25-30 degrees cranially, 15 degrees toward affected side)</p> <p>ADDITIONAL PROJECTIONS</p> <p>Angle varies due to position of pts head, need to see tip of needle</p> <p>ADDITIONAL INFORMATION</p> <p>Screen down the line of the needle.</p> <p>Need to visualise foramen ovale.</p>

FLUOROSCOPY PROCEDURES

PROCEDURE

CONTRAST SWALLOW/MEAL EXAMINATIONS

AUTHORISATION CRITERIA

Barium swallow clinical indications:

Dyspepsia- If endoscopy not tolerated.

?Gastric or duodenal ulcer

?Globus

?Disordered swallowing mechanism

?Oesophageal pouch or web

Dysphagia

?Oesophageal Stricture or Carcinoma

?Gastro Oesophageal Reflux or Hiatus Hernia

Dysphagia.

Odynophagia.

Achalasia.

(water soluble contrast if aspiration is suspected)

Water soluble contrast swallow clinical indications:

?Gastric outlet obstruction

Post operative assessment

?Oesophageal Perforation or Fistula

STANDARD PROJECTIONS

Fluoroscopy/Spot Films as directed by radiologist/practitioner performing examination

PROCEDURE
CONTRAST ENEMA
AUTHORISATION CRITERIA
<p><u>Water soluble contrast enema clinical indications:</u></p> <p>?Large bowel obstruction</p> <p>Post Operative Assessment</p> <p>? Colonic Fistula or Leak</p> <p>- ? malrotation after discussion with Radiologist</p>
STANDARD PROJECTIONS
<p>Fluoroscopy/Spot Films as directed by radiologist/practitioner performing examination</p>

PROCEDURE
SMALL BOWEL ENEMA
AUTHORISATION CRITERIA
<p>Anatomical abnormality of small bowel:</p> <p>Coeliac disease</p> <p>Crohn's disease</p> <p>Obstruction</p> <p>Intestinal blood loss: chronic or recurrent</p>
STANDARD PROJECTIONS
<p>Fluoroscopy/Spot Films as directed by radiologist/practitioner performing examination</p>

PROCEDURE
SIALOGRAMS
AUTHORISATION CRITERIA
? Stones in salivary glands/ducts ? stricture
STANDARD PROJECTIONS
Control films:- Lateral Oblique AP Mandible Lower Occlusal Film – Submandibular Gland Fluoroscopy/Spot Films as per supervising Radiologist.

PROCEDURE
DACRYOCYSTOGRAMS
AUTHORISATION CRITERIA
Stricture in tear duct.
STANDARD PROJECTIONS
AP Control and images taken as per Consultant.

PROCEDURE
PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAM (PTC)
AUTHORISATION CRITERIA
Jaundice; Obstruction of bile duct. Hepatic carcinoma.
STANDARD PROJECTIONS
PA and obliques depending on individual anatomy of patient as directed by Radiologist

PROCEDURE
NEPHROSTOMY
AUTHORISATION CRITERIA
<p>Obstructive Hydronephrosis Pyonephrosis As a prelude to antegrade ureteric stenting when retrograde stenting by urologists by cystoscopy not possible</p>
STANDARD PROJECTIONS
<p>AP with patient prone and oblique views as required by Radiologist</p>

PROCEDURE
Lumbar (Nerve root block, facet joint injection, SI joint injection)
AUTHORISATION CRITERIA
<p>Lumbosacral pain syndromes (including somatic, neuropathic and visceral origin).</p>
STANDARD PROJECTIONS
<p>AP LATERAL OPBLIQUE ANGULATION - cranial or caudal to square the vertebral endplates where necessary.</p>

PROCEDURE
Cervical (nerve root block, facet joint injection)
AUTHORISATION CRITERIA
<p>Cervical pain, occipital headache, sympathetic mediated pain</p>
STANDARD PROJECTIONS
<p>PA/AP LATERAL ANGULATION – dependant on patient anatomy and pathology</p>

PROCEDURE
Joint Injections
AUTHORISATION CRITERIA
Bursa, pain due to arthritis
STANDARD PROJECTIONS
AP LATERAL OBLIQUE

PROCEDURE
Radiologically Inserted Gastrostomy tube
AUTHORISATION CRITERIA
Unsafe swallow Post chemo/radiotherapy treatment Other co-morbidities
STANDARD PROJECTIONS
AP and Lateral views

PROCEDURE
INTERVENTIONAL & THERAPEUTIC PROCEDURES
AUTHORISATION CRITERIA
All referrals are authorised by a consultant radiologist often following discussion with the clinical team. Locally derived referral criteria can be found in the department.

G.I. - ENDOSCOPY PROCEDURE LIST

PROCEDURE
ERCP – Endoscopic Retrograde Choledocopancreatogram +/- Stent Insertion
AUTHORISATION CRITERIA
Acute Pancreatitis – If considered Gall stone related Pancreatic trauma Pancreatic ascites Dilated bile ducts on Ultrasound or CT Pancreatic masses or cysts Possible bile duct damage post surgery Chronic abdominal pain
PROJECTIONS
<p><u>Patient prone:</u></p> <p>Right posterior oblique</p> <p>NB*: Angles vary due to patient anatomy and pathology</p>

PROCEDURE
Dilatation e.g. Oesophageal/Stent Insertion
REFERRAL CRITERIA
Oesophageal Carcinoma Benign strictures Post surgical anastamosis strictures
PROJECTIONS
<p><u>Pt Prone:</u></p> <p>Right posterior oblique</p> <p>PA</p>