BMUS
THE BRITISH MEDICAL ULTRASOUND SOCIETY

BMUS RECOMMENDED GOOD PRACTICE GUIDELINES

JUSTIFICATION OF ULTRASOUND REQUESTS

REVISION 1 - NOVEMBER 2016

Introduction

This document is intended to support referrers to Ultrasound (US) and ultrasound providers in the appropriate selection of patients for whom ultrasound would be beneficial in terms of diagnosis and or disease management. Whilst the document is primarily directed at primary care, the guidance is relevant for other referrer groups .It has been written to aid ultrasound providers in justifying that an ultrasound examination is the best test to answer the clinical question posed by the referral. This document has been compiled by a panel of ultrasound experts to support good practice in vetting and justifying referrals for US examinations . The current tariff for an ultrasound examination is at least £44 per examination rising to £78 for complex procedures. Making best use of resources is essential for sound financial management and good patient care.

The document has been written with a pragmatic approach to managing referrals based on the panelûs expert opinion. This document can be used to assist and underpin any local guidelines that are produced. Reference is made to the evidence based iRefer publication and should be used in conjunction with this http://www.irefer.org.uk/

The NICE guidance (NG12, Suspected Cancer: Recognition and Referral) published in June 2015 has also been considered in the production of this updated publication. In many instances NICE advise urgent direct access CT but if this is unavailable they advise that patients are referred for an urgent ultrasound examination. Local practice should dictate appropriate pathways, following consideration of capacity and demand. The BMUS document was produced with the aim of providing practical advice as to best practice in the acceptance and justification of US referrals.

The BMUS document has been revised in 2016 to create this updated version.

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Principles

This document is based on several non-controversial principles:

- Imaging requests should include a **specific clinical question(s)** to answer , and
- Contain **sufficient information** from the clinical history, physical examination and relevant laboratory investigations to support the suspected diagnosis(es)
- The majority of US examinations are now performed by sonographers not doctors. Suspected diagnoses must be clearly stated, not implied by vague, non-specific terms such as ñPain query causeòor ñpathologyò etc
- Although US is an excellent imaging modality for a wide range of abdominal diseases, there are many for which US is not an appropriate first line test (e.g. suspected occult malignancy)
- Given sufficient clinical information, most NHS providers will re-direct US requests to CT or MR if this is the more appropriate modality , (with the agreement of local commissioners).

This general guidance is based on clinical experience supported by peer reviewed publications and established clinical guidelines and pathways. Individual cases may not always be easily categorized and advice should be sought from the local radiology department

Changes to guidelines and pathways should be approved by local governance processes. Any referrals returned to the referrer will have an accompanying letter explaining the rationale behind this. All actions will be documented and recorded on the local radiology information system (RIS).

The following examples of primary care referrals address the more common requests and are not intended to be exhaustive.

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Clinical details or Symptomology	Comments: Essential criteria for request	Justified Yes (Y) No (N)
General Abdominal		
Abnormal/Altered LFTs with no reference to additional clinical symptoms of concern or an isolated occasion	Refer back for further information if this is the only information given NB. A single episode of mild ï moderate elevation does not justify an US scan Liver Function tests ï Isolated and single occasion enzyme rises ï US generally not indicated ALT alone: Fatty liver (risk factors; obesity, hyperlipidaemia, DM) or Drugs (statins/ OC) ALP alone: probably bone NOT liver (adolescent growth, Pagetôs disease, recent fracture) GGT alone: usually alcohol. Consider prescribed drugs. Fatty liver (risk factors; obesity, TGs, DM) Bilirubin alone: Gilberts syndrome (usually <80mols/L) To improve the diagnostic quality of the scan LFT results must be included in the referral A specific diagnosis is considered and a clinical	N

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	question documented	
Abnormal LFTS + one or more of the following: Pain Jaundice Two or more occasions of abnormal LFTs in other wise asymptomatic patients		 Y Y Y
Raised ALT (other LFTs normal) US is justified if raised ALT is persistent (3-6 months) despite following weight loss and altered lifestyle guidance, and/or change in medication US is justified in pts with persistently raised ALT (3-6 months) and no other risk factors	Refer back for further information if this is the only information given US is NOT justified in patients with high risk factors (DM, obesity, statins & other medications which affect the liver) US is not justified for a single episode of raised ALT	N N N Y Y
Jaundice	Request must state whether painless or not. Patient requires urgent US and referral to the jaundice clinic	Y
Abdo Pain ï as the only clinical detail given but excluding referrals for suspected Gallstones / GB disease	Refer back for further information Generalised or localised pain as the only symptom is not a justification for US. CT is more	N

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	appropriate	
Upper abdominal mass	CT is more appropriate	N
Suspected gallbladder disease	Pain plus consistent history and/or dyspepsia	Y
Gallbladder polyp	There is little evidence to support the monitoring of small (<10mm) gallbladder polyps.	Y
Abdominal Bloating/ Abdominal distension (for pelvic / Gynae symptoms see Gynaecology section)	As the only symptom Persistent or frequent bloating occurring over 12 times in one month, in women especially over 50, with the addition of other symptoms and raised Ca 125, is acceptable. Ascites? Usually due to liver or heart failure or malignancy. Likely cause should be indicated on request: ➢ Suspecting Liver/Cardiac ➢ Suspecting Malignancy/cancer ï CT scan	N Y Y Y N
Altered bowel habit/ Diverticular disease	US does not have a role in the management of IBS or diverticular disease. Refer back for further information (if bowel cancer is suspected then referral via the 2 week wait is indicated)	N
Suspected Pancreatic Cancer • Presenting symptoms of any of the	Consider an urgent direct access CT scan (to be	N

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following: ➢ with weight loss & Diarrhoea or constipation ➢ Nausea or vomiting ➢ Back pain or • New onset Diabetes or unexplained worsening control of diabetes	performed within 2 weeks) if there is high clinical concern If there is reasonable concern but the patient is not acutely unwell then in patients **under 60** ultrasound imaging in the first instance is appropriate. For patients over **over 60** with reasonable concern CT imaging is the test of choice	Y N
Diabetes - known	US does not have a role in the management of well controlled diabetes. Up to 70% of patients with DM have a fatty liver with raised ALT. This does not justify a scan	N
Gradual unexplained weight loss	Patients require Chest X-Ray and ultrasound abdomen & pelvis	Y
Weight loss and anaemia	Patients require colonoscopy, OGD and ultrasound abdomen & pelvis)	Y
Weight loss and chronic reflux	Patients require OGD and ultrasound abdomen & pelvis	Y
Renal Tract		
Urinary tract Infection	First episode Recurrent (> 3 episodes in 12 months) with no underlying risk factors Non-responders to antibiotics Frequent re-infections H/O stone or obstruction	N Y Y Y Y
Hypertension	Routine imaging not indicated. RAS (renal artery screening) no	N

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	longer offered.	
Haematuria	Not to be referred for US directly; Requires 2 week wait cancer referral (often as one-stop service)	Y
? Renal Colic	Female < 40 Any Male & Females **over 40** with haematuria ï Refer for CT	Y N
Small Parts		
Soft Tissue Lump	The majority of soft tissue lumps are benign and if there are classical clinical signs of a benign lump with a corresponding clinical history i.e. that it has not recently increased in size or changed in its clinical features - then US is not routinely required for diagnosis Lipomata and ganglia that are typically less than 5cm, mobile, non-tender with no significant growth over 3 months do not need US for diagnosis. If findings are equivocal however and diagnosis is essential to management eg ñwrist mass ?ganglion ?radial artery aneurysm, excision plannedò ï then US is clearly warranted on a routine basis. Larger lipomata that are planned for excision usually require routine US for confirmation/surgical planning. Significant findings (all or any of the following-mass that is fixed, tender, increasing in size, overlying skin changes , etc) should either be scanned on an urgent basis or referred into a	N N Y Y

	soft tissue sarcoma pathway (depending on local policy)	
Lymphadenopathy	Patients with clinically benign groin, axillary or neck lymphadenopathy do not benefit from US Small nodes in the groin, neck or axilla are commonly palpable. If new and a source of sepsis is evident, Ultrasound is not required.. If malignancy is suspected US +/- FNA or core biopsy is appropriate. Signs of malignancy include : increasing size, fixed mass, rubbery consistency Appropriate further imaging will depend upon the nature of the suspected primary.	N
Scrotal mass	Any patient with a swelling or mass in the body of the testis should be referred urgently.	Y
Scrotal pain	Chronic (>3 months) pain in the **absence of a palpable mass** does not justify US but may be useful for reassurance. Local urology guidelines may apply Suspected torsion requires urgent urological referral which should not be delayed by imaging Acute pain, in the absence of suspected torsion is an appropriate ultrasound referral	N N Y
?Hernia	If characteristic history& exam findings, eg reducible palpable lump or cough impulse, then US not routinely required. If there is clinical doubt however then US is of value.	N Y

	Irreducible and/or tender lumps suggesting incarcerated hernia require urgent surgical referral.	N
?Hernia	If groin pain present, clinical assessment should consider MSK causes and refer accordingly	N
Head and Neck		
Thyroid Nodule	Routine imaging of established thyroid nodules/goitre is not recommended. Ultrasound may be required where there is doubt as to the origin of a cervical mass ie is it thyroid in origin.(Local guidelines may direct such patients into a neck lump clinic for triage) Routine fine needle aspiration (FNA) of benign thyroid nodules is not indicated, FNA is reserved for when equivocal, suspicious or malignant features are detected on US. Routine follow up of benign nodules is not recommended. (Ref 5) Clinical features that increase the likelihood of malignancy include :history of irradiation, male sex, age (<20,>70),fixed mass, hard/firm consistency, cervical nodes, change in voice, family history of MEN II or papillary Ca.	N
Salivary mass	If there is a history suggestive of salivary duct obstruction, sialography may be the more appropriate initial investigation. For a suspected salivary tumor,	Y

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	US (+/- FNA/core biopsy) is recommended. The majority of parotid tumors will be benign however US guided FNA or core biopsy is recommended when a mass is detected to exclude malignancy	
Gynaecology		
Abnormal PV Bleeding (Pre and perimenopausal patients)	Need to specify symptoms i.e investigation of intermenstrual bleeding or menorrhagia or suspicion of fibroids	Y
Prolonged i.e greater than > 3-6 months of unexplained amenorrhea	US to assess endometrial thickness is appropriate	Y
IUCD / Mirena Coil	US to assess presence of fibroids is placement of Mirena coil is considered US to investigate presence of IUCD when threads are not visible is accepted	Y Y
Pelvic Pain ? cause	US is unlikely to contribute to patient management if pain is the only symptom, in patients <50. In patients >50, the likelihood of pathology is increased, and the request may be accepted, **provided** a **specific clinical question** has been posed.	N Y
Pelvic Pain & ➢ Palpable mass ➢ Raised CRP or WCC ➢ Nausea/Vomiting ➢ Menstrual	A **specific clinical question** / differential diagnosis is required The addition of another clinical symptom justifies the request.	Y Y Y Y

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Irregularities ➢ Dyspareunia >6 wks duration		Y
Pelvic Pain & one or more of the following? ➢ H/o ovarian cyst ➢ H/o PCOS ➢ Severeôor ôSuddenô pain ➢ Rule out or ?appendicitis ➢ Rule out or ?ovarian cyst ➢ Rule out or ?anything else	A **specific clinical question** / differential diagnosis is required These do not represent further clinical symptoms, and the request should be referred back. Vague 'notions' of a diagnosis with no real basis, or requests for purposes of reassurance will be rejected pending more information	N
Bloating	Refer back for further information. Persistent or frequent occurring over 12 times in one month, in women especially over 50 with a palpable mass **Persistent** bloating ***with the addition*** of other symptoms such as palpable mass and / or raised Ca 125, is acceptable. A **specific clinical question** is required. Intermittent bloating is not acceptable.	N Y Y N
Follow-up of benign lesions e.g. fibroids, dermoids, cysts	There is no role for US in follow-up or in treatment monitoring unless on advise of secondary care and in patient	N

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	management plan. If the pt has undergone a **clinical change**, then re-scan is acceptable	Y
PMB	Should include information about the LMP (i.e. be post rather than peri-menopausal) and relevant HRT status Local pathway is for direct referral into gynaecology under a 2WW. Scan with view to progress to hysteroscopy is recommended pathway and in place	Y
PCOS	Only useful in secondary care if investigating infertility diagnosis of PCOS should be based on: 1. Irregular menses. 2. Clinical symptoms and signs of hyperandrogenism such as acne, hirsutism. 3. Biochemical evidence of hyperandrogenism with a raised free androgen index (the testosterone is often at the upper limit of normal) 4. Biochemical exclusion of other confounding conditions	N

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Referral guidelines for Musculoskeletal Ultrasound

Introduction.

Many musculoskeletal pathologies are diagnosed successfully by good clinical examination. Incidental pathology is common and may not be the current cause of symptoms ï clinical correlation is always required.

As equipment and training improve, more structures and pathologies are identified using ultrasound so this list may vary between Radiology departments as there may be individual radiologist/sonographers locally with a special interest in a specific field which will increase their scope of practice.

Joints ï may see pathology arising from joints on ultrasound but we cannot exclude intra articular pathology and MRI is a more complete examination if symptoms warrant imaging and clinical examination suggests joint pathology. Equally, if there is ligament damage on the external surface of a joint, concurrent damage to internal structures cannot be excluded.

Joint OA or fracture ï whilst this can often be visualised with ultrasound it is usually an incidental finding of synovitis or a stress fracture ï X- ray is still the first line imaging modality

Important Notes:

- There should be definite / clear clinical diagnosis / question on the request.
- US is good diagnostic modality if a specific question is to be answered.
- For example, requests that should be returned to the referrer include:
  - Knee, foot, ankle pain ? cause
  - Knee injury ? ACL tear
  - Chest pain ? cause
  - Back pain ? nerve pain ? thigh or leg

All injections must only be performed if there is evidence that rehabilitation physiotherapy and other conservative measures for pain relief have been attempted prior to injection taking place - this has to be stated on the request- e.g physio attempted but unsuccessful.

Equally, diagnostics of the shoulder for suspected impingement/rotator cuff disease, hip for ? trochanteric bursitis/tendinopathy, elbow for ? golferôs or tennis elbow and plantar fasciitis will only be accepted if these patients have been for physiotherapy assessment and treatment first. A certain percentage

of these problems will be able to be diagnosed, managed, treated and resolved without the need for imaging- in the cases where this conservative management fails, then an ultrasound diagnostic +/- injection is appropriate.

Clinical details or Symptomology	**Comments: Essential criteria for the request**	**Justified Yes (Y) No (N)**
Soft tissues - general		
Tenosynovitis/rupture		Y
Tendinopathy ï specific tendon should be mentioned		Y
Tendon sheath effusions - specific tendon should be mentioned	Cannot differentiate between infected and non-infected effusion ï US guided aspiration may be required	Y
Calcific tendinopathy - specific tendon should be mentioned		Y
Foreign body		Y
Joints		
Synovitis/erosions	Needs to be directed to a rheumatology pathway	Y
Effusion		Y
Septic arthritis	To confirm/exclude effusion and guide aspiration if required	Y
Loose bodies		N
Labral pathology		N
Cartilage pathology		N
Intra articular pathology including osteoarthritis		N
In addition in individual areas: **Wrist/Hand**		
Bone erosions	Needs to be directed to a rheumatology pathway	Y
Pulley/sagittal band injury/ruptures		Y

Thumb/finger collateral ligament injuries		Y
TFCC tear	MRI superior	N
TFCC calcification	Seen on X- ray	N
Median nerve	Indicated to look for carpal tunnel mass only. May detect neuritis however cannot diagnose CTS on ultrasound	Y
Ulnar nerve compression	To exclude mass causing compression of ulnar nerve	Y
Elbow		
Distal biceps tendon tear	Small insertional tears may be difficult to exclude	Y
Ulnar nerve neuropathy/subluxation	To exclude mass at ulnar canal /medial epicondyle and can confirm subluxation	Y
Median/Radial nerve compression	To exclude external compression (difficult to assess for focal neuritis)	Y
Shoulder		
Site and size of RC tears		Y
Post op cuff failure		Y
LHB dislocation/rupture		Y
Adhesive capsulitis/Frozen shoulder	Clinical diagnosis (ultrasound examination is unremarkable) Ultrasound may be required to exclude other pathologies	Only if clinical concern
Acromioclavicular OA/instability	May be used to confirm origin of mass ie osteoarthritic joint if clinical concern	N
Sternoclavicular joint disease	Cannot exclude fracture on US	N
Occult greater tuberosity fracture	MRI	N
Glenohumeral joint instability	MRI	N

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Labral pathology		N
Ankle/foot		
Erosive arthropathy	Needs to be directed to a rheumatology pathway	N
Peroneal tendon tenosynovitis/subluxation		Y
Posterior tibial tendonopathy	Clinical examination for tendonopathy generally accurate ,US may be required to exclude underlying tear.	Y
Achilles tendon tendinopathy/tears/calcification		Y
Retrocalcaneal/pre Achilles bursitis	Anterior/mid lateral ligaments can be seen ,difficult to exclude pathology in medial ligaments however patients with potential ankle instability may need referral to a specific orthopeadic pathway for assessment +/- MRI	Y
Anterior talofibular ligament Calcaneofibular ligament Posterior talofibular ligament Deltoid ligament		N
Plantar fasciitis		Y
Mortonôs neuroma		Y
Hip		
Effusion/synovitis		Y
Adductor tear		Y
Trochanteric pain	Can be used to guide injections but often nil seen on initial diagnostic scan. Cannot definitively exclude trochanteric bursitis	Y
Knee		
Suprapatellar/infrapatellar/pre patellar bursitis		Y
Patellar tendinopathy/ tear/calcification		Y

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Quadriceps tendinopathy/tear/calcification		Y
Osteochondritis/osteoarthritis		N
Bakerôs cyst		Y

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