

# JUSTIFICATION OF ULTRASOUND REQUESTS

BMUS 

RECOMMENDED BEST PRACTICE GUIDELINES

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## **BMUS RECOMMENDED BEST PRACTICE GUIDELINES JUSTIFICATION OF ULTRASOUND REQUESTS**

### **Introduction**

**These guidelines are for general practice referrals and exclusive of the Rapid Diagnostic Service (RDS) which are under development in England.**

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 may be 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.

Referral management is crucial as we find new ways of working which minimise infection control risks following a global pandemic situation. This guidance aims to provide clear pathways to ensure the best use of ultrasound imaging facilities whilst keeping patients and staff safe.

The document has been compiled by a panel of ultrasound experts with a pragmatic approach to managing referrals. The intention is to support good practice in vetting and justifying referrals for US examinations. Making best use of resources is essential for sound financial management and good patient care.

This document can be used to assist and underpin local guidelines and reference is made to the evidence based iRefer publication which should be used in conjunction with this <http://www.irefer.org.uk/>

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.

It is highly recommended that this document is reviewed with local referrers/stakeholders and CCG and revised by the US clinical leads to best reflect local best practice.

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## Section 1

### 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)
- 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 we will re-direct US requests to CT or MR if this is the more appropriate modality. The referrer will be notified.
- Requests that are inappropriate or do not meet these agreed guidelines will be returned with appropriate advice and guidance.

Individual cases may not always be easily categorised and referrers should be encouraged to seek advice from the local radiology department

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

## Section 2

Clinical details or Symptomology	Comments / Essential criteria for request
<b>Reassurance imaging</b>	
<b>Non-site specific symptoms</b>	<p>Consider FIT testing and CXR prior to referral for imaging</p> <p>Suggest contact is made with radiology advice and guidance service</p> <p>Imaging for reassurance purposes only is not advocated without a determined clinical pathway and referrals purely stating for reassurance should be returned</p> <p>Imaging for non-site specific symptoms (alternatively known as vague symptoms) is only advocated as part of an agreed referral pathway. Referral to emerging rapid diagnostic services / centers or locally agreed pathways is the most appropriate management for patients where symptoms are non-specific but there is a clinical concern of indolent significant disease.</p> <p>Imaging departments are advised to work with commissioners and primary care networks to develop locally agreed rapid diagnostic pathways for both non-site- and site-specific symptoms</p>
<b>Trauma</b>	
<b>Blunt abdominal trauma Suspect abdominal injury post fall</b>	<p>Ultrasound does not have a role in trauma outside of immediate triage FAST scanning in an ED setting.</p> <p>Intra-abdominal injury post trauma cannot be excluded with a high degree of confidence. Haematoma and laceration can be missed, particularly in the acute phase.</p> <p>Imaging with US in the non-acute phase after trauma can be misleading and small lacerations cannot be excluded with confidence</p>

	Patients with suspected intra-abdominal injury need clinical assessment by the trauma team in ED
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<b>General Abdominal Imaging</b>	
<b>Clinical details or Symptomology</b>	<b>Comments / Essential criteria for request</b>
<p>Abnormal/Altered Liver blood tests (LBTs) <i>[N.B. this term now replaces liver function tests – LFTs]</i></p> <p>Initial investigation for potential liver disease should include bilirubin, albumin, alanine transaminase (ALT), alkaline phosphatase (ALP) and <math>\gamma</math>-glutamyltransferase (GGT), together with a full blood count if not already performed within the previous 12 months.</p>	<p><b>USS is an essential part of every abnormal LBT pathway. Used to:</b></p> <ul style="list-style-type: none"> <li>• Identify causes</li> <li>• Establish severity</li> </ul> <p><b>Reference is made to the BSG guidelines 2017 and a local pathway needs to be agreed with primary care, secondary care and imaging services.</b></p> <p><b>However, abnormal liver blood test results should be interpreted only after review of the previous results, past medical history and current medical condition prior to imaging. Where there is an explanatory cause (drug, inter-current illness, comorbidity, H/O travel, insect bites, muscle injury etc) repeat blood tests are advocated in the first instance.</b></p> <p><b>Referrals Returned:</b> Referrals that only state abnormal LFT / LBT. Additional information is required. The request will be rejected without detail. The referral should state that a transient or alternative cause has been excluded.</p> <p>A single episode of mild – moderate elevation of a single enzyme, in isolation, does not always justify an US scan. Where there is a high index of clinical suspicion that it is a transient finding, the blood tests should be rechecked initially, and only investigated if it remains abnormal.</p> <p>For an isolated rise in Alk Phos, the GP needs to confirm that it is of liver origin before proceeding with any further investigation (i.e. doing either GGT or isoenzymes to exclude a bony source). If it is of liver origin, US is indicated to evaluate the biliary system.</p> <p>Isolated rises in GGT do not require further</p>

	<p>investigation and should not trigger a referral for USS.</p> <p><b>Referrals Accepted:</b> Abnormal standard liver aetiology panel blood tests (LBTs) where alternative or transient causes have been excluded.</p> <p>Raised bilirubin + other LBT abnormality requires urgent USS (obstruction or significant disease likely)</p> <p>If LBT (any enzyme) persistently high, (2 or more occasions)</p> <p>If LBT persistently high, despite resolution of transient causes</p> <p>Abnormal LBTs + one or more of the following:</p> <ul style="list-style-type: none"> <li>• Pain</li> <li>• Jaundice</li> </ul> <p>Two or more occasions of abnormal LBTs in otherwise asymptomatic patients</p> <p>Two or more abnormal LBT enzyme results (single or multiple episodes)</p> <p>For isolated rise in Alk Phos, confirmed as liver source by GP (US is indicated to evaluate biliary system).</p>
<p>Raised ALT (other LBTs normal)</p>	<p><b>Typically the range for normal ALT &lt;30U/L in males and &lt; 19U/L for females. Elevations above this are presumed significant</b></p> <p><b>Referrals Returned:</b> US is not justified for a single episode of raised ALT * and where transient cause have been established</p> <p><b>Referrals accepted:</b> * US is justified in patients with high risk factors (DM, obesity, statins and other medications which affect the liver) as a single episode</p>

	<p>Justified in pts with ALT &gt;30U/L in males and &gt;19U/L in females.</p> <p>Persistently raised ALT (2 or more occasions) and where alternative or transient causes have been resolved</p>
Jaundice	<p><b>Referrals Accepted:</b></p> <p>Request must state whether painless or not.</p> <p>Bilirubin levels of &lt; 150 require urgent ultrasound and referral to the 2WW hepatobiliary outpatient jaundice clinic</p> <p>Bilirubin levels of &gt; 150 require immediate referral to acute surgery. Imaging should not be requested via primary care. Appropriate imaging will be undertaken in secondary care.</p>
Abdominal Pain – as the only clinical detail given	<p><b>Commonly, patients present with weight loss and non-site specific symptoms. Imaging departments are advised to consider referral through rapid diagnostic services / pathways dependent upon local agreement. Where RDS/C pathways do not exist, the following guidance is advocated:</b></p> <p><b>Referrals Returned:</b></p> <p>Generalised or localised pain as the only symptom is not a justification for US. Further information is required on the request</p> <p><b>Referrals Accepted:</b></p> <p>A specific clinical question derived from the patient history and clinical examination is acceptable</p>
Palpable Upper abdominal mass	<p><b>Referrals Returned:</b></p> <p>CT request is more appropriate</p>
Suspected gallbladder disease	<p><b>Referrals Accepted:</b></p>

	Pain plus consistent history and/or dyspepsia
Gallbladder polyp	<p><b>Referrals Returned:</b></p> <p>Any polyp (greater than or equal to) <math>\geq 10</math> mm should be referred for a surgical opinion. Rescan is not required unless specifically required on an individual case by case basis led by secondary care.</p> <p><b>Referrals Accepted:</b></p> <p><b>Local practice agreement required.</b></p> <p><b>Suggested management</b></p> <p>Incidental finding of a polyp (less than) <math>&lt; 10</math> mm in an asymptomatic patient should have a follow up scan requested by GP or Secondary care in 1 year with the following caveat:</p> <p>If patient becomes symptomatic thought to be biliary related within the year they should be referred for a surgical opinion, regardless of size of the polyp</p> <p>At 1 year follow up:</p> <p>If polyp has stayed the same after 1-year patient can be discharged with advice, see GP if becomes symptomatic. If the patient does develop RUQ symptoms they should be referred for a surgical opinion for consideration of cholecystectomy, regardless of size of the polyp and not be rescanned.</p> <p>If small increase in size of polyp, annual follow up until either greater than or equal to 10mm, symptomatic or there is no change in size within 12 months.</p> <p>Please refer to BMUS Document: Incidental Findings General Medical Ultrasound Examinations: Management and Diagnostic Pathways Guidance</p>
Abdominal Bloating/ Abdominal distension (for	<b>Commonly, patients present with weight loss and non-site specific symptoms.</b>

<p>pelvic / Gynae symptoms see Gynaecology section)</p>	<p><b>Imaging departments are advised to consider referral through rapid diagnostic services / pathways dependent upon local agreement. Where RDS/C pathways do not exist, the following guidance is advocated:</b></p> <p><b>Referrals Returned:</b></p> <p>Bloating as the only symptom.</p> <p>High Suspicion of malignancy/cancer – CT scan is more appropriate</p> <p><b>Referrals Accepted:</b></p> <p>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.</p> <p>Suspicion of ascites - Usually due to liver or heart failure or malignancy. Likely cause should be indicated on request:</p>
<p>Altered bowel habit/ Diverticular disease</p>	<p><b>Referrals Returned:</b></p> <p>US does not have a role in the management of Irritable Bowel Syndrome.</p> <p>Referrals for Inflammatory Bowel Disease, acute presentations of diverticular disease etc. should be made via secondary care referral.</p> <p>Where bowel cancer is suspected the patient should be referred via the 2 week wait cancer pathway for appropriate investigations and imaging.</p>
<p>Suspected Pancreatic Cancer</p>	<p><b>Commonly, patients present with weight loss and non-site specific symptoms. Imaging departments are advised to consider referral through rapid diagnostic services / pathways dependent upon local agreement. Where RDS/C pathways do not exist, the following guidance is advocated:</b></p>

	<p><b>Referrals Returned:</b></p> <p>Presenting symptoms of any of the following:</p> <ul style="list-style-type: none"> <li>• with weight loss &amp; Diarrhoea or constipation</li> <li>• Nausea or vomiting</li> <li>• Back pain</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>• New onset Diabetes or unexplained worsening control</li> </ul> <p><b>Urgent</b> direct access CT scan is required</p> <p>For patients <b>over 60</b> with reasonable concern but vague symptoms require a FIT test and referral to the 2 WW hepatobiliary outpatient clinic</p> <p><b>Patients under 60</b> A FIT test is required. If FIT <math>\geq 10</math> the patient requires referral to the 2 WW hepatobiliary outpatient clinic.</p> <p><b>Referrals Accepted:</b></p> <p><b>Patients under 60</b> A FIT test is required. If FIT <math>&lt; 10</math> and there is reasonable concern but the patient is not acutely unwell then ultrasound imaging in the first instance is appropriate.</p> <p>As per NICE guidance: An urgent ultrasound scan if CT is not available within a 2-week time frame, to assess for pancreatic cancer in people aged 60 and over with weight loss <b>and</b> any of the symptoms given above</p>
Diabetes - known	<p><b>Referrals Returned:</b></p> <p>US does not have a role in the management of well controlled diabetes. Up to 70% of patients with Diabetes Mellitus have a fatty liver with</p>

	<p>raised ALT. This does not justify a scan</p>
<p>Gradual unexplained weight loss</p>	<p><b>Commonly, patients present with weight loss and non-site specific symptoms. Imaging departments are advised to consider referral through rapid diagnostic services / pathways dependent upon local agreement. Where RDS/C pathways do not exist, the following guidance is advocated:</b></p> <p>A FIT test is required PRIOR to requesting imaging.</p> <p><b>Referrals Returned:</b> If FIT <math>\geq</math> 10 the patient requires referral to the 2 WW GI outpatient clinic.</p> <p><b>Referrals Accepted:</b> If FIT &lt;10 Chest X-Ray and ultrasound abdomen &amp; pelvis</p>
<p>Weight loss and anaemia</p>	<p><b>Commonly, patients present with weight loss and non-site specific symptoms. Imaging departments are advised to consider referral through rapid diagnostic services / pathways dependent upon local agreement. Where RDS/C pathways do not exist, the following guidance is advocated:</b></p> <p>A FIT test is required PRIOR to requesting imaging.</p> <p><b>Referrals Returned:</b></p> <p>If FIT <math>\geq</math> 10 the patient requires referral to the 2 WW GI outpatient clinic.</p> <p><b>Referrals Accepted:</b></p> <p>If FIT &lt;10 Chest X-Ray and ultrasound abdomen &amp; pelvis</p> <p>Request all tests</p>

<p>Weight loss and chronic reflux</p>	<p><b>Commonly, patients present with weight loss and non-site specific symptoms. Imaging departments are advised to consider referral through rapid diagnostic services / pathways dependent upon local agreement. Where RDS/C pathways do not exist, the following guidance is advocated:</b></p> <p>A FIT test is required PRIOR to requesting imaging.</p> <p><b>Referrals Returned:</b> If FIT <math>\geq</math> 10 the patient requires referral to the 2 WW GI outpatient clinic.</p> <p><b>Referrals Accepted:</b> If FIT <math>&lt;</math>10 Chest X-Ray and ultrasound abdomen &amp; pelvis</p>
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<b>Renal Tract</b>	
<b>Clinical details or Symptomology</b>	<b>Comments / Essential criteria for request</b>
Urinary tract Infection	<p><b>Referrals Returned:</b></p> <p>First episode</p> <p><b>Referrals Accepted:</b></p> <p>Recurrent (&gt; 3 episodes in 12 months) with no underlying risk factors</p> <p>Non-responders to antibiotics</p> <p>Frequent re-infections</p> <p>H/O stone or obstruction</p>
Hypertension	<p><b>Referrals Returned:</b></p> <p>Routine Doppler imaging not indicated as of limited diagnostic accuracy.</p> <p><b>Referrals Accepted:</b></p> <p>Renal tract and adrenal glands to assess for renal disease/obstructive uropathy and exclude large adrenal mass</p>
Haematuria Visible and Non-Visible	<p><b>Referrals Returned:</b></p> <p>As is best practice, many centres <u>require</u> the referral to be part of a cancer pathway only via secondary care and not as a direct referral from primary care. Please consult local pathway. These requests would include:</p> <p>Dysuria with unexplained non-visible haematuria, 60 and over (cancer pathway- urgent referral)</p> <p>Haematuria (visible and unexplained) either without urinary tract infection or that persists or recurs after successful treatment of urinary tract infection, 45 and over</p>

	<p>Haematuria (non-visible and unexplained) with dysuria or raised white cell count on a blood test, 60 and over</p> <p><b>Referral Accepted:</b></p> <p>Haematuria (visible) with low haemoglobin levels or thrombocytosis or high blood glucose levels or unexplained vaginal discharge in women 55 and over (for pelvis to assess for ? endometrial cancer and urinary tract)</p> <p>Urinary tract infection (unexplained and recurrent or persistent), 60 and over</p>
Suspected Renal Colic	<p><b>Referrals Returned:</b></p> <p>Females <b>over 40</b> and Any Male with high suspicion of stones which include acute pain and / or haematuria. Refer for CT from the community</p> <p><b>Referrals Accepted:</b></p> <p><b>Female &lt; 40.</b> Examination can progress to gynecology scan if required</p> <p>Suspicion of stone disease in male or female of any age but no acute pain or haematuria</p>

### Section 3

<b>Gynaecology</b>	
<p><b>The clinical history has to be sufficiently detailed in order to maximise the value of the ultrasound report – this will reduced the amount of missed pathologies such as ? endometiosis. This should be stressed to referrers if the request is declined.</b></p>	
<b>Clinical details:</b>	<b>Comments / Essential criteria for request</b>
Gynecology referrals stating “scan to assess cervix”	<p><b>Referrals Returned:</b></p> <p>These referrals should be rejected as ultrasound is not used in the primary diagnosis of occult cervical pathology.</p> <p><b>Referrals Accepted:</b></p> <p>Where a cervical polyp is clinical visualised, an US scan can be carried out to assess for endometrial polyps.</p>
<p>Follow-up of benign lesions</p> <p>e.g. Fibroids, Dermoid cysts, simple cysts, hemorrhagic cysts, endometrioma</p> <p>Follow-up of benign lesions in post-menopausal women</p>	<p><b>Referrals Returned:</b></p> <p>There is no role for US for routine follow-up or in treatment monitoring when initial scan finds a benign ovarian/uterine lesion.</p> <p><b>Referrals Accepted:</b></p> <p>If the patient has undergone a <b>clinical change</b>, then re-scan is acceptable.</p> <p>Asymptomatic women, with simple, unilateral, unilocular ovarian cysts, (&lt;5cm) in diameter have a low risk of malignancy. In the presence of normal serum CA 125 levels, these cysts can be managed conservatively and a repeat scan in four – six months is advised.</p>
Abnormal PV Bleeding (Pre and peri-menopausal patients)	The majority of pre-menopausal bleeding problems will be dysfunctional and standard treatment options should be offered prior to scans being undertaken.

	<p><b>Referrals Returned:</b></p> <p>No information on the referral other than abnormal PV bleeding No evidence of failed treatment options</p> <p><b>Referrals Accepted:</b></p> <p>Need to specify symptoms i.e. investigation of intermenstrual bleeding or menorrhagia or suspicion of fibroids.</p> <p>Treatment options have failed – this is to be stated on the referral</p>
<p>Prolonged (&gt;3 months) of unexplained oligomenorrhoea or secondary amenorrhoea (no menses for &gt; 6 months)</p>	<p><b>Referrals Returned:</b></p> <p>If oligomenorrhoea has been less than 3 months referrals are not accepted. This must be stated on the referral</p> <p><b>Referrals Accepted:</b></p> <p>US to assess endometrial thickness is appropriate if oligomenorrhoea has been &gt; 3 months</p>
<p>Primary Amenorrhoea (Defined as : Absence of menses and secondary sexual characteristics by age 14 or absence of menses with normal secondary sexual characteristics by age 16)</p>	<p><b>Referrals Returned:</b></p> <p>Abnormal prolactin and TSH. Refer patient to endocrinology.</p> <p><b>Referrals Accepted:</b></p> <p>Normal prolactin and TSH results</p>
<p>IUCD or Mirena intrauterine system</p>	<p><b>Referrals Accepted:</b></p> <p>US to assess presence of fibroids if placement of Mirena or IUCD is considered</p> <p>US to investigate presence of Mirena or IUCD when threads not seen.</p>

	If patient is pregnant with Mirena or IUCD refer to Early Pregnancy Unit
PID	<p><b>Referrals Returned:</b></p> <p>There is no role for ultrasound in management of suspected pelvic inflammatory disease. Pelvic swabs are more appropriate.</p> <p><b>Referral Accepted:</b></p> <p>Ultrasound may be helpful if an abscess or hydrosalpinx is suspected. These requests are however usually more appropriate via secondary care referrals. Patients with suspected PID referrals will be accepted if symptoms persist following treatment.</p>
Pelvic Pain  Premenopausal Patients	<p><b>Referrals Returned:</b></p> <p>US is unlikely to contribute to patient management if pain is the only symptom, in patients &lt;50.</p> <p>Pelvic Pain &amp; one or more of the following?</p> <ul style="list-style-type: none"> <li>• H/O Ovarian Cyst</li> <li>• H/O PCOS</li> <li>• Severe' or 'Sudden' pain – Isolated and short duration</li> <li>• Rule out or ?appendicitis</li> <li>• Rule out or ?ovarian cyst</li> <li>• Rule out or ?anything else</li> </ul> <p>These do not represent further clinical symptoms. Vague symptoms, or requests for purposes of reassurance will be returned with the expectation of more clinical information/clinical history examination findings should be provided to justify US scan</p> <p><b>Referrals accepted:</b></p>

Post-Menopausal Patients	<p>In patients with suspected endometriosis, pelvic pain plus one or more of the following:</p> <ul style="list-style-type: none"> <li>• Cyclical pain (often but not always)</li> <li>• Pain the week before and after a period</li> <li>• Dysmenorrhea</li> <li>• Dyschezia</li> <li>• Dyspareunia</li> </ul> <p><b>Referrals Accepted:</b></p> <p>In patients &gt; 50, the likelihood of pathology is increased, and the request may be accepted, <b>provided a specific clinical question</b> has been posed.</p> <p>In any patient pain plus one or more of the following US accepted:</p> <ul style="list-style-type: none"> <li>• Palpable mass</li> <li>• Raised CRP or WCC</li> <li>• Nausea/Vomiting</li> <li>• Menstrual Irregularities</li> <li>• Dyspareunia &gt;6 wks duration</li> </ul>
Dysmenorrhoea	<p><b>Referral Returned:</b></p> <p>If pelvic examination/smear test and STI swabs are normal.</p> <p><b>Referrals Accepted:</b></p> <p>If smear and STI swabs are normal, but pelvic examination reveals an enlarged uterus.</p>
Menorrhagia	<p><b>Referrals Returned:</b></p> <p>If uterus palpates normal size</p> <p>Vaginal examination does not yield a pelvic mass</p>

	<p>If pharmaceutical treatment has not been tried</p> <p><b>Referrals Accepted:</b></p> <p>Endometrial polyps are suspected</p> <p>Uterus is palpable abdominally</p> <p>Vaginal examination yields a pelvic mass</p> <p>Pharmaceutical treatment fails after 3 months</p>
<p>Post coital bleeding/intermenstrual bleeding</p>	<p><b>Referrals Returned:</b></p> <p>If pelvic examination has not been completed. If smear/HVS &amp; STI swabs have not been completed.</p> <p><b>Referrals Accepted:</b></p> <p>If pelvic examination, smears and swabs are completed and normal.</p>
<p>Persistent vaginal discharge</p>	<p><b>Referral Returned:</b></p> <p>If pelvic examination has not been completed. If smear/HVS &amp; STI swabs have not been completed.</p> <p><b>Referral Accepted:</b></p> <p>If pelvic examination, smears and swabs are completed and normal.</p>
<p>Bloating</p>	<p><b>Referrals Returned:</b></p> <p>Bloating as an isolated symptom is not accepted.</p> <p>Intermittent bloating is not acceptable.</p> <p><b>A specific clinical question</b> is required.</p> <p><b>Referrals Accepted:</b></p> <p>Persistent or frequent occurring over 12 times in one month, in women especially over 50 with a palpable mass</p>

	<p><b>Persistent</b> bloating <i>with the addition</i> of other symptoms such as palpable mass and / or raised CA 125, is acceptable.</p>
PMB	<p><b>Referrals Returned:</b></p> <p>Previous hysterectomy- Reject advising GP to refer to gynaecology</p> <p>Less than 12 months since previous LMP – Reject advising GP to refer to general gynaecology</p> <p>Patients with a Mirena intrauterine system/IUCD in situ or very recently removed, as the endometrium cannot be reliably assessed for pathological appearances.</p> <p>Previous PMB and normal scan but with repeat bleed less than 6 months since previous investigation</p> <p><b>Referrals Accepted:</b></p> <p>Women receiving Tamoxifen (*note: these women require a gynae follow-up appointment regardless of endometrial thickness)</p> <p>Women with postmenopausal bleeding who have had a gynaecology history review and vulva-vagina examination.</p> <p>Repeat PMB more than 6 months since previous investigations</p>
PCOS	<p><b>Referrals Returned:</b></p> <p>Only useful in secondary care if investigating subfertility</p> <p>Diagnosis of PCOS should be based on:</p> <ol style="list-style-type: none"> <li>1. Irregular menses.</li> <li>2. Clinical symptoms and signs of hyperandrogenism such as acne,</li> </ol>

	<p>hirsutism.</p> <ol style="list-style-type: none"> <li>3. Biochemical evidence of hyperandrogenism with a raised free androgen index (the testosterone is often at the upper limit of normal)</li> <li>4. Biochemical exclusion of other confounding conditions</li> </ol> <p>Ultrasound should not be used for the diagnosis of PCOS in those with a gynaecological age of less than 8 years (less than 8 years after menarche) due to the high incidence of multifollicular ovaries in this life stage.</p>
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## Section 4

<b>Superficial Structures</b>	
<b>Clinical details or Symptomology</b>	<b>Comments / Essential criteria for request</b>
Soft Tissue Lump	<p><b>Referrals Returned:</b></p> <p>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 - US is not routinely required for diagnosis</p> <p>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.</p> <p>In cases of classical features of: Dupytren's, plantar fibromatosis, mobile nodules at the SI joint level and generalized lipomatosis at the nape of the neck, calf muscle hernias, US is not required for diagnosis</p> <p><b>Referrals Accepted:</b></p> <p>If clinical findings are equivocal and diagnosis is</p>

	<p>essential to management e.g. “wrist mass ?ganglion ?radial artery aneurysm, excision planned”, then US is warranted on a routine basis. Larger lipomata that are planned for excision usually require routine US for confirmation/surgical planning.</p> <p>If there are significant clinical findings: Any of the following:</p> <ul style="list-style-type: none"> <li>• mass that is fixed</li> <li>• tender</li> <li>• increasing in size</li> <li>• has overlying skin changes</li> </ul> <p>US on an urgent basis or referral into the soft tissue sarcoma pathway</p>
Lymphadenopathy	<p><b>Referrals Returned:</b></p> <p>Small lymph nodes in the groin, neck or axilla are commonly palpable. Ultrasound is not routinely required.</p> <p><b>Referrals Accepted:</b></p> <p>Firm Lumps in neck, axilla and/or groin require US imaging as a first line investigation from primary care if they are persistent for 6 weeks or more and malignancy is not particularly suspected.</p> <p>Signs of malignancy include: increasing size, painless fixed mass, rubbery consistency.</p> <p><b>If malignancy is clinically suspected appropriate imaging and / or referral will depend upon the site of the suspected node.</b></p> <p><b>Firm lumps in the neck:</b></p> <p>Referrals accepted for US imaging as first line investigation. See neck section.</p> <p><b>Axillary firm lumps / enlarged lymph nodes in female patient.</b> This will be dependent on local policy and +/- any other accompanying signs and symptoms. Referral to breast care unit as a first line investigation is often the required pathway</p>

	<p><b>Axillary firm lumps / enlarged lymph nodes – males.</b> Ultrasound may be used to assess the morphology of axillary lymph nodes however where there are highly suspicious features of malignancy, Chest X-Ray required as a first line investigation. Ultrasound indicated +/- USG biopsy after advice and guidance discussion with Haematology.</p> <p><b>Groin lymph nodes where malignancy is suspected.</b></p> <p>Ultrasound is indicated after advice and guidance discussion with haematology.</p>
Scrotal mass	<p><b>Referrals Accepted:</b></p> <p>Any patient with a swelling or mass in the body of the testis should be referred urgently.</p>
Scrotal pain	<p><b>Referrals Returned:</b></p> <p>Suspected torsion requires urgent urological referral which should not be delayed by imaging</p> <p>Uncomplicated epididymo-orchitis</p> <p>Chronic varicocele uncomplicated hydrocele and epididymal cysts providing that the clinical examination is unequivocal in identifying that the mass is extra testicular.</p> <p><b>Referrals accepted:</b></p> <p>Where the clinical diagnosis is unclear US is indicated and will influence management.</p> <p>Where there is clinical doubt, and if the testicle cannot be palpated separate to the mass (e.g. large hydrocele) then US is warranted</p> <p>Acute pain, in the absence of suspected torsion or acute epididymo-orchitis is an appropriate indication</p>

	<p>for an ultrasound referral.</p> <p>US is appropriate to evaluate suspected complications of epididymo-orchitis e.g. abscess or when pain and symptoms persist despite antibiotic treatment.</p>
Hernia	<p><b>Referrals Returned:</b></p> <p>If characteristic history and examination findings e.g. reducible palpable lump or cough impulse, then US not routinely required.</p> <p>GP referrals should be directed to a surgical assessment.</p> <p>Irreducible and/or tender lumps suggest incarcerated hernia and require urgent surgical referral.</p> <p>If groin pain present, clinical assessment should consider MSK causes and refer accordingly</p>

Head and Neck	
Clinical details or Symptomology	Comments / Essential criteria for request
Neck Lump	<p><b>Referrals Returned:</b></p> <p>If lesion clinically characteristic of a sebaceous or epidermoid cyst Ultrasound scan is not indicated.</p> <p>Lumps present for a substantial amount of time with little or no change</p> <p><b>Referrals Accepted:</b></p> <p>Neck Lump present for more than 3 weeks that has changed clinically</p> <p>Neck lump present that is unexplained and present for more than 6 weeks</p> <p>Lymph nodes increasing in size or Lymph nodes greater than 2 cm in size</p> <p><u>NB: widespread lymphadenopathy – refer directly to haematology</u></p> <p><b>Local pathways/policy may exist which direct the referral system such as direct access palpable lumps and bumps pathways, ENT one stops etc.</b></p>
Thyroid Nodule	<p><b>Referrals Returned:</b></p> <p>Routine imaging of established thyroid nodules/goitre is not recommended.</p> <p>Routine follow up of benign nodules is not recommended.</p> <p>Incidental thyroid nodules demonstrated on cross sectional imaging do not require automatic assessment with ultrasound – refer to the BTA guidelines</p>

	<p><b>Referrals Accepted:</b></p> <p>Incidental thyroid nodules found on CT/MRI where there is a strong family history of thyroid cancer or strong clinical concerns, these must be indicated on the request card.</p> <p>Clinical features that increase the likelihood of malignancy include: history of irradiation, male sex, age (&lt;20,&gt;70), fixed mass, hard/firm consistency, cervical nodes, change in voice, family history of MEN II or papillary Ca.</p> <p>Ultrasound may be required if there is a sudden increase in size of an established thyroid nodule/goitre or where there is doubt as to the origin of a cervical mass i.e. is it thyroid in origin.</p> <p>New sudden onset of thyroid mass.</p> <p><b>Local pathways/policy may exist which direct the referral system such as direct access palpable lumps and bumps pathways, ENT one stops etc.</b></p>
Salivary Glands	<p><b>Referrals Accepted:</b></p> <p>History suggestive of salivary duct obstruction</p> <p>An unexplained persistent swelling/lump in the parotid or submandibular gland</p> <p><b>Local pathways/policy may exist which direct the referral system such as direct access palpable lumps and bumps pathways, ENT one stops etc.</b></p>

## Section 5

### Musculoskeletal Ultrasound

#### Introduction

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

Pathology may be seen arising from joints, but US cannot exclude intra articular pathology and MRI is a more complete examination if symptoms warrant imaging and suggest joint pathology. Equally, if there is ligament damage on the external surface of a joint, concomitant damage to internal structures cannot be excluded and further cross-sectional imaging is often required.

Joint OA or fracture – whilst this can often be visualised with ultrasound it is usually an incidental finding. X- ray is still the first line imaging modality

#### Important Notes:

- There should be a clear working diagnosis and/or clinical question on the request. Given the above caveats, US is an excellent diagnostic modality if a specific question is to be answered.
- Requests that will be returned to the referrer include:
  - Pain ? cause
  - Knee injury ? ACL tear
  - Chest pain ? cause
  - Back pain ? nerve pain ? thigh or leg

Ultrasound examination for some suspected pathologies e.g. impingement/rotator cuff disease, hip for trochanteric bursitis/tendinopathy, elbow for golfer's or tennis elbow and foot for plantar fasciitis should only be accepted if these patients have been for appropriate clinical assessment and treatment first. Most 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 US may be appropriate

<b>Soft Tissues – General</b>
<b>Clinical Details</b>
<p><b>Referrals Returned:</b></p> <p>Suspected thumb/finger collateral ligament injuries should be referred to secondary care as prompt treatment is vital</p> <p><b>Referrals Accepted:</b></p> <p>Clinical examination indicates possible</p> <p>Tenosynovitis</p> <p>Tendinopathy /Calcific tendinopathy</p> <p>Rupture</p> <p>NB: to ensure the ultrasound examination and report is useful, a specific tendon or group of tendons (e.g. rotator cuff) should be indicated in the request</p> <p>Effusion, however, US cannot differentiate between infected and non-infected effusion. Patients with clinical signs and symptoms to suggest ? infection should be referred to secondary care.</p> <p>Foreign body location</p>
<b>Joints – General</b>
<p><b>Referrals Returned:</b></p> <p>Requests for the investigation of Synovitis/erosions should be directed through rheumatology pathway and not investigated via direct primary care route</p> <p>Loose bodies</p> <p>Labral pathology</p> <p>Cartilage pathology</p> <p>Intra articular pathology including osteoarthritis</p> <p><b>Referrals Accepted:</b></p> <p>Suspected swollen joint ? effusion (with the caveat that effusion may be a cause of swelling but is non-specific – see note above about infection)</p>

## Individual Areas

### Wrist/Hand

#### Referrals Returned:

?Triangular fibrocartilage complex(TFCC) tear should be a secondary care referral and MRI is modality of choice

TFCC calcification can be adequately assessed on Plain Film X-Ray

#### Referrals Accepted:

Pulley/sagittal band injury/ruptures

Median nerve-Indicated to look for carpal tunnel mass only. May detect neuritis however cannot diagnose Carpal Tunnel Syndrome on ultrasound

Ulnar nerve compression To exclude mass causing compression of ulnar nerve

### Elbow

#### Referrals Accepted:

Distal biceps tendon tendinopathy

Recalcitrant Common Extensor Origin (CEO) /Common Flexor Origin (CFO) tendinopathy (tennis/golfers elbow)

Tendon tear

Ulnar nerve neuropathy/subluxation. To exclude mass at cubital tunnel /medial epicondyle and confirm subluxation

### Shoulder

#### Referrals Returned:

Sternoclavicular joint disease

? Occult greater tuberosity fracture, should be a secondary care referral for imaging and usually CT or MRI

Glenohumeral joint instability – should be directed to Orthopaedics or MRI

Labral pathology

**Referrals requiring discussion:**

Adhesive capsulitis/Frozen shoulder is a clinical diagnosis (ultrasound examination is often unremarkable) Ultrasound may be required to exclude other pathologies. Scan only if clinical concern for alternative pathologies

**Referrals Accepted:**

? Rotator cuff tear

Post op cuff failure assessment

Long Head Biceps tendon dislocation/rupture

**Ankle/foot**

**Referrals Returned:**

Assessment of Anterior talofibular ligament, Calcaneofibular ligament, Posterior talofibular ligament, Deltoid ligament

Anterior/mid lateral ligaments can be seen, however patients with potential ankle instability would need referral to a specific Orthopaedic pathway for assessment +/- MRI

**Referrals Accepted:**

Medial/lateral/anterior tendinopathy, tenosynovitis/subluxation

Achilles tendinopathy/tear/calcification

Retrocalcaneal/pre Achilles bursitis

Recalcitrant plantar fasciitis/fasciopathy

Morton's neuroma

Plantar plate disruption (usually a secondary care or other specialist referral)

**Hip**

**Referrals Returned:**

Hip pain ? cause

Hip pain ? OA

**Referrals Accepted:**

Effusion (with the caveat that effusion may be a cause of swelling but is non-specific – see note above about infection)

Adductor tear

Gluteal tendinopathy/tear

Palpable lateral hip/upper thigh swelling ? Greater trochanteric bursal effusion

**Knee**

**Referrals Returned:**

?Osteochondritis/osteoarthritis

**Referrals Accepted:**

Assessment for suprapatellar/infrapatellar/pre patellar bursitis

Patellar tendinopathy/ tear/calcification

Quadriceps tendinopathy/tear/calcification

Baker's cyst

## References and Further Reading:

### Applicable to all sections

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