GUIDELINES FOR ULTRASOUND DOPPLER REFERRAL FOR DVT LOWER LIMB STUDIES

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

GUIDELINES FOR ULTRASOUND DOPPLER REFERRAL FOR DVT LOWER LIMB STUDIES

This guideline covers patients referred to Worcestershire Acute Hospitals NHS Trust imaging department with diagnosis or symptoms of lower limb VTE. This includes all adult patients age 18 and over with suspected DVT, excluding pregnant patients.

(For **pregnant patients** see document 'Policy for Imaging in Suspected Venous Thromboembolism (VTE) During Pregnancy or Puerperium (Radiology)' WAHT-KD-024.

This guideline is for use by the following staff groups :

Referrers in primary and secondary care
Radiologists and Sonographers.

Lead Clinician(s)

Dr Anjumara Nilak	Consultant Radiologist – Radiology.
Approved by Radiology Directorate Governance meeting	21st March 2023
Review Date: This is the most current document and should be used until a revised version is in place	21st March 2026

Key amendments to this guideline

Date	Amendment	Approved by:
	Reviewed and updated into clinical guideline template	Radiology directorate governance meeting
08.03.2023	Full review in Radiology	Radiology Directorate Governance Meeting

GUIDELINES FOR ULTRASOUND DOPPLER REFERRAL FOR DVT LOWER LIMB STUDIES

Introduction

A diagnosis of DVT is usually suspected in patients who complain of a painful swollen limb. However, the clinical picture can vary widely and no clinical feature is sufficiently specific to be diagnostic. Less than a third of patients referred for tests, after initial history and clinical examination, have a DVT. Clinical diagnosis is notoriously difficult.

Common Presenting Features:

- Pain or tenderness of the leg
- Swelling of calf or leg
- Pitting oedema
- Palpable venous thrombosis
- Increased temperature in the leg
- Fever
- Discoloration or erythema of the leg
- Venous distension

Details of Guideline

1. PRE-TEST PROBABILITY ASSESSMENT.

Patients will initially have a pre-test probability assessment (Keeling*, et al* 2004, Wells*, et al* 1997, Wells*, et al* 2003, Wells*, et al* 1995) by a DVT nurse / GP and be classified as unlikely or likely to have a DVT (see table below).

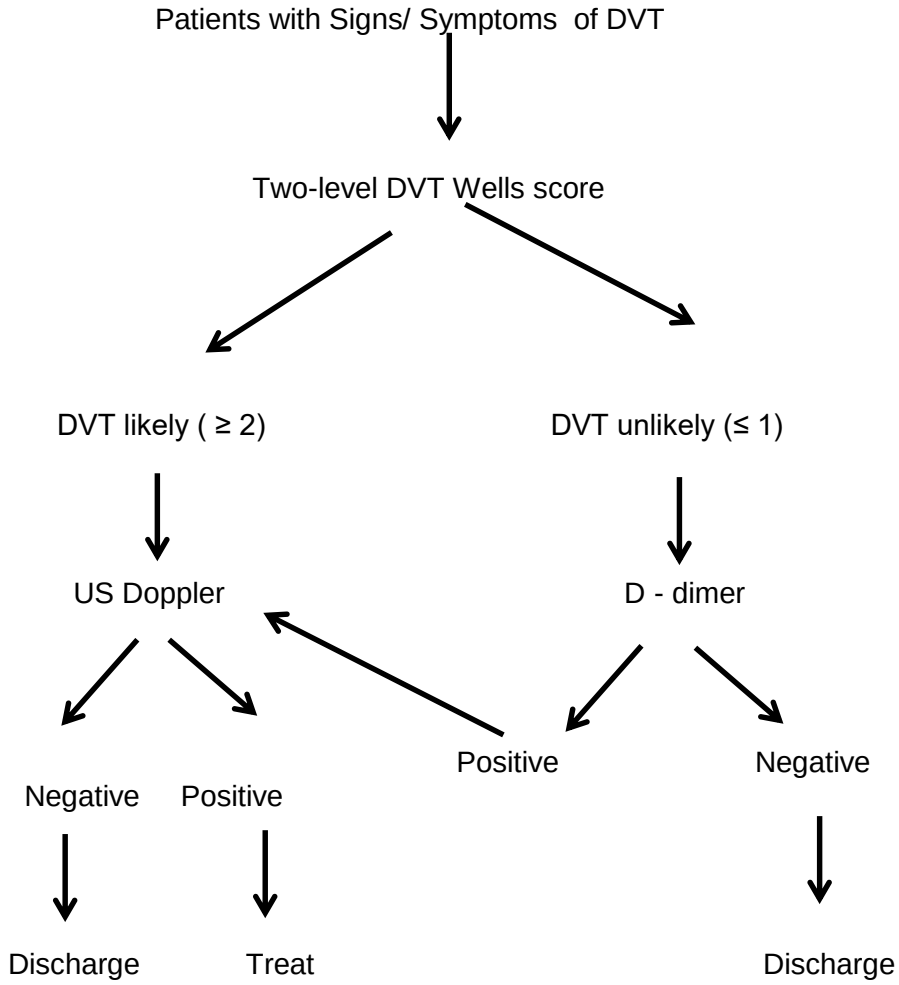
The nurse / GP will then follow the algorithm in the figure overleaf.

	Points
Active cancer (patient receiving treatment for cancer within the previous six months or currently receiving palliative treatment)	1
Paralysis, paresis, or recent plaster immobilisation of the lower extremities	1
Recently bedridden for 3 days or more, or major surgery within previous twelve weeks	1
Localised tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
Calf swelling at least 3 cm larger than the asymptomatic leg (measured ten cm below tibial tuberosity)	1
Pitting oedema confined to the symptomatic leg	1
Collateral superficial veins (nonvaricose)	1
Previously documented venous thromboembolism	1
Alternative diagnosis at least as likely as deep vein thrombosis	**-2**

In cases in which it is unclear as to whether there is an alternative diagnosis the assumption of no alternative diagnosis will ensure the highest level of safety.

SCORE	PROBABILITY
≤ 1	Unlikely
≥ 2	Likely

2. DIAGNOSTIC ALGORITHM.



3. D-DIMER

Age related D-dimer values will be considered as recommended in the updated NICE guidelines (NG 158).
In patients who have already had an anticoagulant, D-dimers cannot be used as part of the diagnostic algorithm.

Age-Related D-Dimer Reporting

From Monday 3 December, Haematology will be changing the reporting of D-dimers to include age-related cut-off values.

This will raise the normal values for older patients with the subsequent aim of reducing the number of false positive outcomes.

Age-Related D-Dimer Reporting

Age–related D-dimer Reference Range

Age (Years)	D-dimer ng/ml NEGATIVE	D-dimer ng/ml POSITIVE
<60	<500	>500
61-70	<600	>600
71-80	<700	>700
81-90	<800	>800
>90	<900	>900

Further information on age-related cut-off values can be found through the following links:

http://www.bmj.com/content/346/bmj.f2492

http://jama.jamanetwork.com/article.aspx?articleid=1841967

We are aware that many primary care services currently provide quantitative point-of-care D-dimer tests and may need to acquire new equipment and provide training on how to conduct and interpret the tests. Results of point-of-care testing will be considered if rapid laboratory testing is not available.

4. PATIENTS WITH BILATERAL SYMPTOMS

Most patients with bilateral leg swelling will not have a DVT but will have a systemic condition such as heart failure, hypoalbuminaemia, renal failure or severe anaemia.
If patient has bilateral symptoms, only one lower limb (worst affected as decided by clinician) will be scanned for DVT. If any clinical concerns, further discussion with consultant radiologist encouraged.

5. DOPPLER REQUESTS FOR RESOLUTION OF CLOT

NICE does not recommend any follow up Doppler study to assess resolution of thrombus. Please see guidance on stopping or continuing anticoagulation (under 1.4 of NICE guidelines NG158 – long term anti-coagulation for secondary prevention). Requests from Haematology consultants will be accepted after clinical discussion with radiologist.

6. PATIENTS WITH CLINICAL SIGNS OF SUPERFICIAL PHLEBITIS

If Doppler confirms superficial thrombophlebitis, mention distance of clot from the sapheno-femoral or sapheno-popliteal junction. (= or < 3 cms from SPJ /SFJ). This will alter management.

7. PATIENTS WITH SUSPECTED/ CONFIRMED PULMONARY EMBOLIS (PE)

If PE is proven on CTPA, we do not offer Doppler lower limb as patient will be on treatment dose Clexane and presence / absence of DVT will not change management.

If PE not proven on CTPA, and patient has signs of lower limb DVT (with Wells Score of 2 or more or positive D-dimer) then Doppler request is justified.

Rarely, if the request comes from interventional/ vascular team – patient may be candidate for mechanical thrombectomy (such requests need discussion with duty / on-call radiologist).

8. RESULTS

Positive Scans - All reports will be sent back to and actioned by the referring clinician. In cases of positive studies, reports will be marked as Urgent / significant depending on the clinical scenario, and an email alert will be generated. If extensive / proximal DVT identified with iliac extension, patient will be directed to A & E / AEC teams and simultaneously urgent alert also sent to the referrer.

Negative Scans - If Doppler is performed to the popliteal bifurcation, due to scan limitations this will be mentioned in the report. Repeat US in 6-8 days can be requested after clinical evaluation and a positive age adjusted d-dimer value in patients with progressive symptoms and those at high risk.

Monitoring Tool

This should include realistic goals, timeframes and measurable outcomes.

How will monitoring be carried out?

Who will monitor compliance with the guideline?

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
	These are the 'key' parts of the process that we are relying on to manage risk. We may not be able to monitor every part of the process, but we MUST monitor the key elements, otherwise we won't know whether we are keeping patients, visitors and/or staff safe.	What are we going to do to make sure the key parts of the process we have identified are being followed? (Some techniques to consider are; audits, spot-checks, analysis of incident trends, monitoring of attendance at training.)	Be realistic. Set achievable frequencies. Use terms such as '10 times a year' instead of 'monthly'.	Who is responsible for the check? Is it listed in the 'duties' section of the policy? Is it in the job description?	Who will receive the monitoring results? Where this is a committee the committee's specific responsibility for monitoring the process must be described within its terms of reference.	Use terms such as '10 times a year' instead of 'monthly'.
	---	Re-audit on DVT Doppler referral from primary care physicians.	Annually	Dr. Nilak	This will be presented in the audit meeting, both to sonographers and consultants	Once in a year.

References

- Venous thromboembolic diseases: diagnosis, management and thrombophilia testing

NICE guideline [NG158] Published date: 26 March 2020

Contribution List

This key document has been circulated to the following individuals for consultation;

Designation
Haematologists

This key document has been circulated to the chair(s) of the following committee's / groups for comments;

Committee
Radiology Directorate Governance Meeting

Supporting Document 1 - Equality Impact Assessment Tool

. To be completed by the key document author and included as an appendix to key document when submitted to the appropriate committee for consideration and approval.

Please complete assessment form on next page;

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust		Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	

Details of individuals completing this assessment	**Name**	**Job title**	**e-mail contact**
	Dr. Anjumara Nilak	**Consultant Radiologist & US lead**	**Anjumara. Nilak@nhs.net**
Date assessment completed	**11/3/2021**		

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	**Title:** GUIDELINES FOR ULTRASOUND DOPPLER REFERRAL FOR DVT LOWER LIMB STUDIES.			
What is the aim, purpose and/or intended outcomes of this Activity?	To assist primary care physicians and hospital clinicians in appropriate lower limb Doppler referrals, as per latest NICE guidance			
Who will be affected by the development & implementation of this activity?	❑	Service User	❑	Staff
	❑	Patient	❑	Communities
	❑	Carers	❑	Other _____
	❑	Visitors	❑	

Is this:	❑ Review of an existing activity ❑ New activity ❑ Planning to withdraw or reduce a service, activity or presence?
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.	Discussion with CCG leads, A & E & Hematology team. Reference taken from recent NICE guidance
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	Minutes of meeting with CCG leads recorded
Summary of relevant findings	---

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		Neutral		Neutral
Disability		Neutral		
Gender Reassignment		Neutral		
Marriage & Civil Partnerships		Neutral		
Pregnancy & Maternity		Neutral		
Race including Traveling Communities		Neutral		
Religion & Belief		Neutral		
Sex		Neutral		

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Sexual Orientation		Neutral		
Other Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)		Neutral		
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)		Neutral		

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
		.		
How will you monitor these actions?				
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)				

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.
1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	Dr. A Nilak
Date signed	21/4/2021
Comments:	---
Signature of person the Leader Person for this activity	
Date signed	
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	NO
2.	Does the implementation of this document require additional revenue	Additional sonographer training needs to be discussed
3.	Does the implementation of this document require additional manpower	YES
4.	Does the implementation of this document release any manpower costs through a change in practice	NO
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	Possibly this needs to considered in the near future
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval.