Royal Cornwall Hospitals
NHS Trust

Venous Thromboembolism (VTE) in Pregnancy, Labour and Postnatal Period – Diagnosis, Referral, Treatment and Ongoing Management Clinical Guideline

V3.0

November 2025

1. Aim/Purpose of this Guideline

1.1. This is to give guidance to any health professional caring for a pregnant or newly delivered woman with suspected or confirmed thromboembolic disease.

1.2. For the purposes of this guideline postnatal and post-partum refer to the period up to 6 weeks post-delivery for all women.

1.3. In cases where scanning is required for women with suspected PE the scanning algorithm should be applied to all women who continue to breastfeed beyond 6 weeks post-delivery.

1.4. This guideline makes recommendations for women and people who are pregnant. For simplicity of language the guideline uses the term women throughout, but this should be taken to also include people who do not identify as women but who are pregnant, in labour and in the postnatal period. When discussing with a person who does not identify as a woman, please ask them their preferred pronouns and then ensure this is clearly documented in their notes to inform all health care professionals.

1.5. This version supersedes any previous versions of this document.

Data Protection Act 2018 (UK General Data Protection Regulation – GDPR) Legislation.

The Trust has a duty under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team.

Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

2. The Guidance

2.1. Introduction

Venous thromboembolism (VTE) is a major cause of mortality in pregnant women, with an estimated mortality rate in the UK of 1.08 per 100,000; Risk is highest during the post-partum period. Possible sites are:

- Pulmonary embolism (PE).
- Deep vein thrombosis (DVT).

2.2. Signs of PE

In a study of 38 pregnant women with confirmed PE, the four most common features at presentation are:

- Dyspnoea (62%).
- Pleuritic chest pain (55%).
- Cough (24%).
- Sweating (18%).

2.3. Signs of DVT

- Painful calf swelling (unilateral / bilateral) in pregnancy or post-natal period.

2.4. Initial assessment

2.4.1. All pregnant women with suspected VTE should have a thorough clinical assessment to exclude other conditions which may cause a similar presentation.

2.4.2. If the woman has any features to suggest respiratory failure or haemodynamic instability, and is in the community setting, prompt referral should be made to the emergency department (ED).

2.4.3. If the woman is on an obstetric ward, the obstetrician in charge will assess and if appropriate liaise with the medical team.

2.4.4. In the community setting, if a PE is suspected but there are no features to suggest respiratory failure or haemodynamic instability and the woman is clinically stable, the woman should be referred to the GP urgently. The Acute GP Service (ext. 3566) is available from 08:30hrs to 18:30hrs, Monday to Friday and 08:30hrs to 18:00hrs on Saturday and Sunday. Outside of these hours the referral pathway is to out of hours GP.

2.4.5. Those women assessed in ED / Acute Medical Unit (AMU) / obstetric ward may be followed up by the Acute GP Service following an internal referral.

2.5. Referral for suspected DVT alone

2.5.1. Refer on Maxims under “Thrombosis and Anticoagulation Nursing Outpatient service – suspected DVT”. Request a doppler ultrasound through Maxims under radiology and then vascular studies.

2.5.2. If you need to discuss the case ring the Thrombosis Nursing team on x3597 Monday to Friday 09:00- 17:00. If they are unavailable, please call the on-call hematologist via switchboard.

2.5.3. The Thrombosis Nursing Team will refer the patient to the joint obstetric and haematology clinic as appropriate and will organise any long-term follow-up.

2.6 Investigations

2.6.1. These should be initiated in the appropriate health setting. If a referral is made to the acute GP setting the following investigations will be done by them.

2.6.2. If a plan is made to manage within the inpatient setting the following investigations need initiating at that point.

2.6.3. FBC, U&Es, LFTs, and coagulation profile should be done for all women. Clinicians need to be aware that, at present, there is no evidence to support the use of pre-test probability assessment in the management of acute VTE in pregnancy.

2.6.4. D-dimers should not be performed in the investigation of acute VTE in pregnancy or during the post-partum period.

2.6.5. Women presenting with signs of an acute PE should have an electrocardiogram (ECG) and a chest X-ray performed.

2.6.6. Arterial blood gas analysis should be performed if resting SpO2 is less than 94% on air.

2.6.7. Diagnostic radiology should be performed where there is a high clinical suspicion of VTE.

2.7. Diagnostic Radiology

2.7.1. The imaging algorithm below is recommended for clinically stable patients.

2.7.2. If a patient needs urgent imaging out of hours, contact the radiology consultant/SpR on call for advice.

- **DVT** – if ultrasound is negative, DVT is ruled out and anticoagulation can be discontinued.

- **PE** The risks, benefits and alternatives should be discussed with the woman prior to the investigations being undertaken. For those who are unstable, e.g. massive PE, refer to section 2.9.

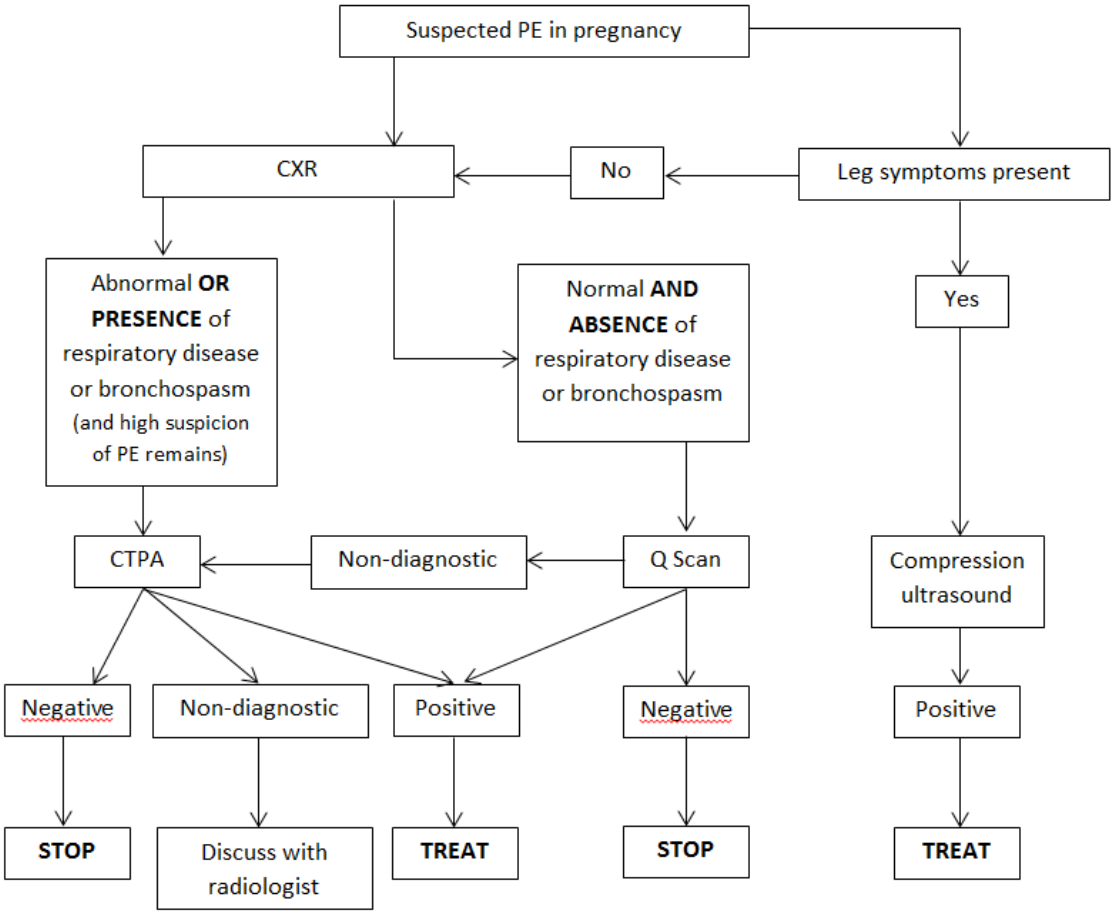
2.7.3. Imaging

The following imaging algorithm adapted from the American Thoracic Society/Society of Thoracic Radiology Clinical Practice Guideline (5) is recommended for clinically stable patients. For those who are unstable, e.g. massive PE, refer to relevant section later in the guideline. A sensitive SPECT perfusion (Q) scan is acquired in Royal Cornwall Hospital instead of a ventilation/perfusion (V/Q) scan as advocated in the original guideline. This service is available Monday to Friday. As

special lung kits need to be prepared for the scans they will either be performed on the day the scan is requested, or on the next working day. If a patient needs urgent imaging in the evening (after 5pm) at the weekend or on a bank holiday, the case will have to be discussed with the radiology consultant/SpR on call. Presentations on a Sunday evening could be imaged on the Monday morning.

Patients should be appropriately counselling regarding the investigations.

Diagnostic algorithm for suspected PE in clinically stable pregnant patients



2.8. Initial Treatment

2.8.1. Women with a high suspicion of VTE should be commenced on anticoagulation on presentation, provided there are no absolute contraindications. The agents preferred are either Dalteparin or Enoxaparin titrated against the woman's booking or early pregnancy weight, in a twice daily schedule. Prefilled syringes should be used. (see table 1).

2.8.2. Where delivery is planned, either by elective caesarean section or induction of labour, LMWH therapy should be discontinued 24 hours prior to planned delivery.

2.8.3. Regional anaesthetic or epidural catheter insertion should not be undertaken until at least 24 hours after the last dose of therapeutic LMWH and the epidural catheter should not be removed within 24 hours of the most recent therapeutic LMWH injection. In the initial management of DVT the leg should be elevated, and graduated compression hosiery applied to reduce oedema. Mobilisation with GCH should be encouraged.

2.8.4. Table 1: Dose and frequency of anticoagulation treatment:

Weight	<50kg	51-69kg	70-89kg	90-109kgs	>110kgs
Dalteparin	5000u bd	7500u am 5000u pm	10000u am 7500u pm	10000u bd	12500u am 10000u pm
Enoxaparin	40mg bd	60mg bd	80mg bd	100mg bd	120mg bd

2.9. Management of a woman with suspected PE with respiratory compromise

(If the woman is on maternity unit refer to guideline for the Severely Ill Woman)

2.9.1. Respiratory support

If the patient has a resting SpO2 < 94% on air, supplemental oxygen should be given to achieve a SpO2 > 94-98%. An anaesthetic opinion should be sought to maintain an appropriate SpO2. Critical Care or HDU involvement should be sought in the presence of severe respiratory failure and be a MDT decision.

2.9.2. Massive PE

The woman should be managed on Critical Care or HDU based on the clinical indication via a senior multidisciplinary team.

The management should not be compromised by the pregnancy.

2.9.3. Severe renal failure

Anticoagulation should be adjusted for those with severe renal failure as per Thrombosis Prevention and Anticoagulation Policy.

2.10. Ongoing treatment of confirmed VTE:

2.10.1. All confirmed cases should be referred to the Joint Haematology Obstetric clinic.

2.10.2. Treatment with therapeutic anticoagulation should be continued for the duration of pregnancy and for at least 6 weeks postnatally until at least 3 months of treatment is given in total.

2.10.3. LMWH should not be given for 4 hours after the use of spinal anaesthesia or after the epidural catheter has been removed.

2.10.4. Women receiving ante natal LMWH should be advised to stop treatment if they have any vaginal bleeding or once labour begins. In these instances, the patients should be re-assessed on admission to hospital and any further doses prescribed by medical staff

2.10.5. Women should be offered a choice of either LMWH or an oral anticoagulant for postnatal therapy however the use of Direct Oral Anti-Coagulations (DOACs) are not recommended for women who are breast feeding. Treatment with Vitamin K antagonists postpartum are an option however warfarin should be avoided until at least the fifth day and for longer in women at increased risk of post-partum bleeding.

2.10.6. The **first dose of post-partum LMWH can be given**:

- When blood loss is considered normal for the postnatal period.
- After 4 hours of epidural catheter removal and spinal.
- If there has been concerns about platelets, ensure they are > 75 before giving first dose.
- Then daily following the first dose.

2.11. Documentation of management plans for confirmed VTE

2.11.1. For women seen by the acute GP service plan of care will be documented in the main health records and a referral letter will be sent to the joint Obstetric/haematology clinic and copied to the GP.

2.11.2. For women seen in Thrombosis clinic a copy of the clinic outcome letter will be added to the patient's electronic maternity record.

2.11.3. For women seen at the joint obstetric/haematology clinic a letter will be sent to the woman's GP informing them of the plan of care and a copy uploaded to the electronic maternity record for access by the midwife and obstetric team.

3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	• The audit will take into account record keeping by obstetricians and midwives. • The results will be inputted onto an excel spread sheet. • The audit will be registered with the Trust's audit department.
Lead	Audit midwives

Information Category	Detail of process and methodology for monitoring compliance
Tool	• Was a booking risk assessment completed? • Was an ante natal admission (non-labour related) risk assessment completed? • Was a post-delivery risk assessment completed? • If assessed as intermediate or high, was the appropriate referral made to the joint haem/obs team or consultant clinic? • If the woman required thromboprophylaxis, was an appropriate management plan documented on the patients electronic health record? • If the woman required treatment for a VTE, was an appropriate management plan documented on the patients electronic health record? • If the woman received a diagnosis of VTE during pregnancy and post-natal period, was she offered a follow up at the joint haem/obs clinic?
Frequency	• 1% or 10 sets, whichever the greater, of all health records of women who have delivered and received thromboprophylaxis or treatment for a diagnosis of VTE will be audited over a 3-year period.
Reporting arrangements	• A formal report of the results will be reviewed at the maternity risk management and audit review team. • During the process of the audit if compliance is below 75% or other deficiencies identified, this will be highlighted at the next maternity risk management and audit review team and an action plan agreed.
Acting on recommendations and Lead(s)	• Any deficiencies identified on the annual report will be discussed at the maternity risk management and audit review team.
Change in practice and lessons to be shared	• Required changes to practice will be identified and actioned within a time frame agreed on the action plan. • A lead member of the forum will be identified to take each change forward where appropriate. • The results of the audits will be distributed to all staff through the risk management newsletter/audit as per the action plan.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the Equality Diversity And Inclusion Policy or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Venous Thromboembolism (VTE) in Pregnancy, Labour and Postnatal Period –Diagnosis, Referral, Treatment and Ongoing Management Clinical Guideline V3.0
This document replaces (exact title of previous version):	Venous thromboembolism (VTE) in pregnancy, labour and post-natal period – clinical guideline for the diagnosis, referral, treatment and ongoing management V2.0
Date Issued/Approved:	November 2025
Date Valid From:	November 2025
Date Valid To:	November 2028
Directorate/Department responsible (author/owner):	Miss Sophie Haynes Consultant Obstetrician. Mr Andrew Mcsorley, Thrombosis Specialist Nurse .
Contact details:	01872 253862
Brief summary of contents:	This is to give guidance to any Obstetrician or midwife who is caring for a pregnant or newly delivered woman with suspected thromboembolic disease. To give guidance to any clinician within RCHT who is caring for a pregnant or newly delivered woman with suspected thromboembolic disease. E.g. Emergency department (ED), medical admissions unit (MAU) and any other clinical setting.
Suggested Keywords:	Pulmonary Embolism, PE, Deep Vein Thrombosis, DVT, VTE, DVT, Thromboembolism, pregnancy.
Target Audience:	**RCHT:** Yes **CFT:** No **CIOS ICB:** No
Executive Director responsible for Policy:	Chief Medical Officer
Approval route for consultation and ratification:	Maternity Guidelines Group
Manager confirming approval processes:	Caroline Chappell

Information Category	Detailed Information
Name of Governance Lead confirming consultation and ratification:	Michael Cross
Links to key external standards:	CNST 3.8
Related Documents:	• Heit JA, Kobbervig CE, James AH, Petterson TM, Bailey KR, Melton LJ III. Trends in the incidence of venous thromboembolism during pregnancy or postpartum: a 30-year population-based study. Ann Intern Med 2005;143:697–706. • Marik PE, Plante LA. Venous thromboembolic disease and pregnancy. N Engl J Med 2008;359:2025–2033. • Gherman RB, Goodwin TM, Leung B, Byrne JD, Hethumumi R, Montoro M. Incidence, clinical characteristics, and timing of objectively diagnosed venous thromboembolism during pregnancy. Obstet Gynecol 1999;94:730–734. • Bourjeily G, Paidas M, Khalil H, Rosene-Montella K, Rodger M. Pulmonary embolism in pregnancy. Lancet 2010;375:500–512. • An Official American Thoracic Society/Society of Thoracic Radiology Clinical Practice Guideline-Evaluation of Suspected Pulmonary Embolism in Pregnancy. Am J Respir Crit Care Med. 2011 Nov 15;184(10):1200-8. • BTS guideline for emergency oxygen use in adult patients. Thorax 2008;63**:** Suppl 6 vi1-vi68. • Knight M, Kenyon S, Brocklehurst P, Neilson J, Shakespeare J, Kurinczuk JJ (Eds.) on behalf of MBRRACE-UK. Saving Lives, Improving Mothers' Care – Lessons learned to inform future maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009–12. Oxford: National Perinatal Epidemiology Unit, University of Oxford 2014. • Thromboembolic disease in pregnancy and the pueperium: acute management. Green top guideline No.37 Royal College of Obstetricians and Gynaecologists.
Training Need Identified?	None

Information Category	Detailed Information
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet
Document Library Folder/Sub Folder:	Clinical / Midwifery and Obstetrics

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
December 2009	V1.0	Initial Document	Mr Rob Jones, Consultant Obstetrician
August 2013	V1.1	Updated document to include change in management process. Include management of a pregnant woman with suspected VTE anywhere within acute setting. Updated Compliance Monitoring.	Dr Aylur Rajasri, Consultant Obstetrician
May 2016	V1.2	Updated document to include recommendations from RCOG green top guidance No. 37b April 2015.	Andrew Mcsorley, Thrombosis practitioner / VTE CNS
October 2018	V1.3	Updated document to reflect agreed changes to management of LMWH in women with confirmed VTE in pregnancy.	Andrew Mcsorley, Thrombosis practitioner / VTE CNS
December 2021	V2.0	Timely update. Moved onto RCHT guideline template.	Sophie Haynes, Obstetric Consultant
December 2021	V3.0	Full update with minor changes noted within document.	Sophie Haynes, Obstetric Consultant

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document.

This document has been created following the Royal Cornwall Hospitals NHS Trust The Policy on Policies (Development and Management of Knowledge Procedural and Web Documents Policy). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity, and Inclusion Team rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy/policy/proposal/service function to be assessed:	Venous Thromboembolism (VTE) in Pregnancy, Labour and Postnatal Period –Diagnosis, Referral, Treatment and Ongoing Management Clinical Guideline V3.0
Directorate and service area:	Obstetrics and Gynaecology
Is this a new or existing Policy?	Existing
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	Sophie Haynes, Obstetric Consultant
Contact details:	01872 252879

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	This is to give guidance to any Obstetrician or midwife who is caring for a pregnant or newly delivered woman with suspected thromboembolic disease. To give guidance to any clinician within RCHT who is caring for a pregnant or newly delivered woman with suspected thromboembolic disease. E.g. Emergency department (ED), medical admissions unit (MAU) and any other clinical setting.
2. Policy Objectives	To ensure a pathway for pregnant or newly delivered women with suspected VTE.
3. Policy Intended Outcomes	Prompt management of a pregnant or newly delivered woman with a suspected or confirmed VTE.
4. How will you measure each outcome?	Compliance monitoring tool.
5. Who is intended to benefit from the policy?	Pregnant and newly delivered women.

Information Category	Detailed Information
6a. Who did you consult with? (Please select Yes or No for each category)	• Workforce: Yes • Patients/visitors: No • Local groups/system partners: No • External organisations: No • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	**Please record specific names of individuals/groups:** Maternity Guidelines group.
6c. What was the outcome of the consultation?	Guideline agreed.
6d. Have you used any of the following to assist your assessment?	**National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys:** No.

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
Religion or belief	No	
Marriage and civil partnership	No	

Protected Characteristic	(Yes or No)	Rationale
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact Sophie Haynes, Obstetric Consultant.

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:
Section 2. Full Equality Analysis