



Aneurin Bevan University Health Board

Guideline for the Prevention and Treatment of Thrombosis in Pregnancy and the Postpartum Period

N.B. Staff should be discouraged from printing this document. This is to avoid the risk of out of date printed versions of the document. The Intranet should be referred to for the current version of the document.

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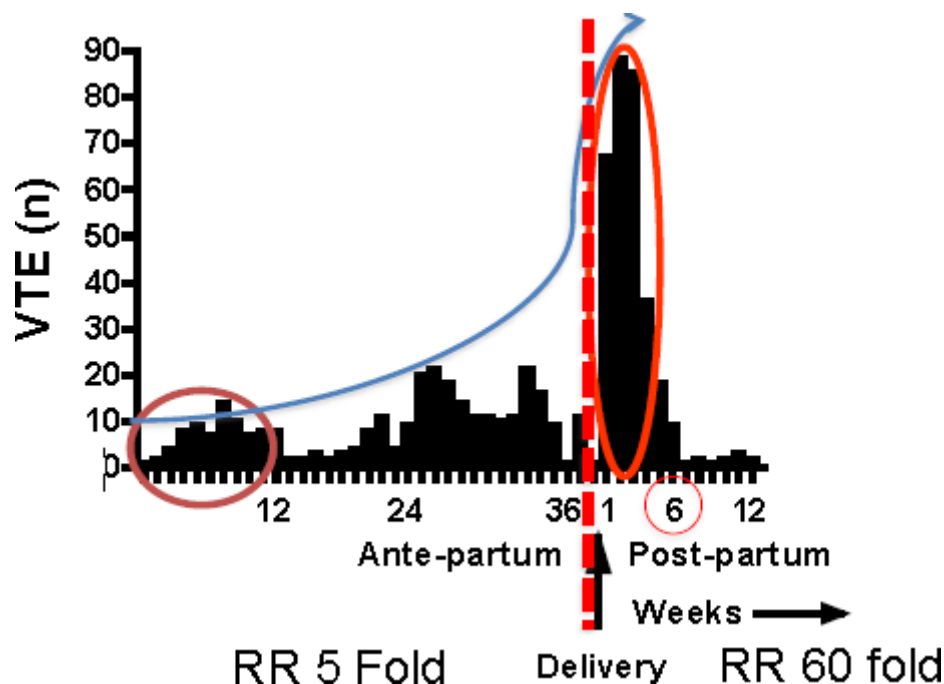
1. Executive Summary

This document aims to highlight women at risk of venous thromboembolism and give guidance during pregnancy as to which patients are at highest risk.

Venous thromboembolism (VTE) is currently the leading direct cause of maternal death in the UK. In the latest MBRACE review from 2019 -21 published in Oct 23, there were 33 maternal deaths due to VTE (38% of all maternal deaths). The overall incidence of pregnancy related VTE is 1-2/1000. The risk is present throughout the pregnancy – with a bimodal distribution. Most cases occur in the first and third trimesters, with the majority of maternal deaths occurring in the first trimester. Postpartum, the incidence is 5 x higher than in pregnancy. DVT accounts for 85% of all VTE antenatally. Postnatally PE is more predominant.

12 women in the recent review died from VTE in the first trimester, often before any formal booking and risk assessment could be carried out. This has highlighted the importance of educating pregnant women about their personal risk of recurrence if they have had a previous VTE, and also alerting medical professionals of this risk should women present with symptoms of VTE.

Risk of VTE throughout pregnancy and the post-partum period



Increased coagulation factors, stasis and vascular damage all heighten the thrombotic risk, and diagnosis of VTE in pregnancy is often difficult as the symptoms may mimic those of pregnancy.

DVT in pregnancy is more frequently proximal and 90% + cases affect the left leg compared to 55% outside of pregnancy. This is due to compression of the Left iliac vein the gravid uterus and the common iliac artery. There are often other risk factors –

Non pregnancy related	Pregnancy related
Previous VTE	Multiple gestations
Heart disease	Assisted reproduction
Diabetes	Hyperemesis
Smoking	Pre-eclampsia
Obesity	Prolonged labour
Age >35 years	Caesarean section, esp emergency
Sickle cell disease	

All women dying from VTE following vaginal delivery in the 2011 Confidential Enquiry were either overweight or over the age of 35 years. Only one of the ten deaths involved operative vaginal delivery. This enquiry concluded that ‘there is a clear need for the development of national guidelines on thromboprophylaxis after normal delivery’.

This document has been formulated in response to this report to ensure pregnant women have a high standard of care and that all risk factors for VTE have been considered at regular intervals preconceptually if appropriate, throughout pregnancy and the puerperium, and appropriate action and treatment taken.

1.1 Scope of policy

This policy applies to all members of staff including midwives, Obstetric medical staff and nursing staff on the early pregnancy assessment unit and gynaecology ward.

1.2 Essential Implementation Criteria

Risk assessment of the pregnant women at all stages of pregnancy from

- Initial visit to midwife (may be community midwife)/GP
- Booking visit
- Subsequent visits to antenatal clinic
- Any inpatient admission
- Presenting in labour

- Postpartum

This assessment can be carried out by a midwife, nurse or doctor using the Thromboprophylaxis risk assessment tool for pregnant women – see appendix 1.

2. Aims

This document aims to ensure every woman presenting in pregnancy has ongoing risk assessment for venous thromboembolism, and to treat risk factors appropriately with TED stockings and LMW heparin as needed at any stage of pregnancy and the postpartum period, giving the best possible treatment to these women to prevent VTE and hence serious complications.

3. Responsibilities

All health professionals involved in caring for women in pregnancy and the puerperium are responsible for implementing the policy including

- Midwives
- Doctors (Obstetrics, Acute Medicine Consultants, ED physicians)
- Nurses / midwives in EPAU
- Nurses on Gynaecology ward (caring for gestation < 20 weeks)

4. Training

The Directorate will cascade training to both medical and midwifery staff on the use of this guideline and the associated risk assessment tools.

5. Monitoring and Effectiveness

A commitment to audit this policy annually will be undertaken, and the results will be reported back to the Obstetrics and Gynaecology Directorate, and to the clinical governance committee who will act on them. The assessment tool (Appendix 1) will be audited as part of the departmental audit, as well as looking at outcome (review of women presenting with venous thrombosis in pregnancy and postnatally).

6. References

1. [Reducing the Risk of Thrombosis and Embolism during Pregnancy and the Puerperium \(Green-top Guideline No. 37a\) | RCOG](#)
2. [Diagnosis and treatment of venous thrombosis in pregnancy and after birth | RCOG](#)
3. [British Journal of Haematology | Wiley Online Library](#) Thrombophilia testing – A BSH Guideline May 2022
4. [Investigation and Management of Antiphospholipid Syndrome \(b-s-h.org.uk\)](#) Jan 2020
5. [Antithrombotic Therapy for VTE Disease - CHEST \(chestnet.org\)](#) Chest journal March 2024
6. [MBRRACE-UK Maternal Compiled Report 2023.pdf \(ox.ac.uk\)](#)

This policy has undergone an equality impact assessment screening process using the toolkit designed by the NHS Centre Equality & Human Rights. Details of the screening process for this policy are available from the policy owner.

Guideline for ***Prevention*** of Thrombosis in Pregnancy and Postpartum Period (thromboprophylaxis)

Patients with personal history of VTE

If the woman has a personal history of VTE, as soon as she finds out she is pregnant, she needs to be urgently referred to the Early Pregnancy Assessment Unit to start thromboprophylaxis immediately, and for an early viability scan. These women will then be referred onto the joint obstetric clinic run by Dr Lewis and Mrs Parveen – **see pathway in appendix 1**

Women of childbearing age within ABUHB who are diagnosed with a DVT/PE are counselled at the time of the thrombosis, with regards their increased thrombotic risk in pregnancy, and given written information. They are seen in the haematology clinic to ensure they are aware of their own personal risk of VTE.

1. Antenatal assessment

All women should be assessed for risk of VTE at every antenatal visit and a decision made regarding the need for:

- 1) Post partum venous thromboprophylaxis
- 2) Antenatal venous thromboprophylaxis throughout pregnancy
- 3) Antenatal venous thromboprophylaxis at times of high risk
- 4) Therapeutic anticoagulation throughout pregnancy

A personal and family history of VTE should be sought in all women. The Risk Assessment Tool for use through pregnancy and the post natal period is enclosed in Appendix 1 and can be printed for use in all clinic / ward settings.

2) Antenatal thromboprophylaxis

- The need for thromboprophylaxis during pregnancy will depend on the woman's medical history, personal and family history of venous thrombosis and inherited and acquired risk factors.
- Women who have an increased risk of VTE but do not require prophylactic LMWH throughout pregnancy will need VTE prophylaxis if immobilized, admitted to hospital or dehydrated.

- All women with an increased risk of venous thrombosis should wear graduated support stockings throughout pregnancy and for 6 weeks post-partum.
- Midwives should dispense LMWH from ANC via the ABUHB maternity services outpatient dalteparin prescription form (see appendix 5). All dispensing should be in line with the TTH/discharge supply by nurses and midwives policy and all patients supplied with a Dalteparin Patient Information Sheet (appendix 6).
- **If a patient has a latex allergy, please use Clexane® (as the only preparation which does not include latex).**

Antenatal prophylactic doses Dalteparin (Fragmin) and Clexane® :

- Check **FBC, U+E and Coagulation screen** prior to commencing LMWH
- At risk women should be given LMWH according to the most up to date weight recorded
- Suggested prophylactic doses of dalteparin by body weight.

Most Recent Weight	Dose of Dalteparin	Dose of Clexane®
< 50 kg	2500 units once daily	20mg once daily
50-90kg	5000 units once daily	40mg once daily
91– 130kg	7500 units once daily	60mg once daily
131 – 170kg	10,000 units once daily	80mg once daily
>170kg	75 units/kg/day	Discuss with haematology

- Anti Xa monitoring should be carried out only if weight >150 kg or BMI >50 kg / m²
- Please check Anti Xa level after 2 weeks : **14 weeks gestation**
- This should be taken 4 hours post injection in a **blue top** citrated vacutainer. Please ensure the bottle is properly filled
- Range for thromboprophylaxis **0.05-0.15 IU**
- If levels are within this range, please repeat each trimester **at 28 weeks and 36 weeks gestation**
- If levels outside of this range, please contact Dr Lewis for guidance regarding dose adjustment

3. Delivery

- Women on any form of heparin should have an agreed delivery plan, involving obstetrician, obstetric anaesthetist and haematologist. For patients not attending the haematology clinic, a birth plan proforma is available

- The pregnant woman should be advised that once she thinks she is in labour she must contact the labour ward for advice and should not inject any further heparin until she has been assessed.

4. Caesarean section

- Continue prophylactic heparin once haemostasis is secure.

5a. Thromboprophylaxis in the post-operative period for women not already on antenatal heparin

- **All** women should receive thromboprophylaxis after Caesarean section
- **At risk** women should be given dalteparin daily for at least 10 days according to their most recent recorded weight. Early mobilisation and good hydration should be encouraged.

Suggested Prophylactic Doses of Dalteparin by Body Weight

Most Recent Weight	Dose of Dalteparin	Dose of Clexane®
< 50 kg	2500 units once daily	20mg once daily
50-90kg	5000 units once daily	40mg once daily
91– 130kg	7500 units once daily	60mg once daily
131 – 170kg	10,000 units once daily	80mg once daily
>170kg	75 units/kg/day	Discuss with haematology

5b. Duration of Post Partum Thromboprophylaxis

- Transient risk factors – **10 days** dalteparin
- Previous DVT/PE, or family history of VTE, APLS – **6 weeks** prophylaxis with dalteparin
- Dalteparin is safe during breastfeeding

- The combined oral contraceptive pill should not be prescribed for the first three months post partum for women with risk factors for VTE

6. Epidural and spinal anaesthesia

- All women on heparin prophylaxis with complicating circumstances should be reviewed in the anaesthesia antenatal clinic.
- Always inform the on-call consultant anaesthetist when a pregnant woman on anticoagulation therapy is admitted in labour or with antenatal complications likely to result in imminent delivery.
- **Full anticoagulation is a contra-indication to spinal or epidural anaesthesia.**
- There is a risk of spinal haematoma when an epidural is inserted or removed. Early diagnosis improves outcome. To minimise the risk, the following guideline should be followed:

Patient group	Action
“Low risk”/ “intermediate risk” prophylactic LMWH (5000 units)	Ensure a delay of 12 hours from the last dose before inserting or removing an epidural.
Therapeutic dose LMWH (more than 5000 units daily)	Ensure a delay of 24 hours from the last dose before inserting or removing an epidural.

- **LMWH should not be given for 6 hours after use of spinal anaesthesia or after the epidural catheter has been removed.**
- The catheter should not be removed within 12 hours of the most recent injection

These times are a guide and a risk benefit ratio assessment regarding regional or general anaesthesia should be made for each individual patient dependent on the specific clinical circumstances.

- **Renal impairment: LMWH is cleared more slowly and the above recommended times may not be sufficient. Discuss with haematologist and perform an urgent anti-Xa level prior to insertion or removal or an epidural.**
- If an epidural has to be removed before these times have elapsed or falls out accidentally then documented regular assessment of changes in either motor or sensory function is recommended to ensure that a spinal haematoma is detected early. In addition, it is noted that deep-seated back pain may be symptom of a spinal haematoma.

Reactions to LMWH

- Occasionally women may react to dalteparin.
- In this situation firstly try an alternative LMWH – enoxaparin
- If there is a persistent reaction then prophylactic fondaparinux should be used as per patients' weight

Weight	Fondaparinux Dose (prophylactic)
>50kg	2.5mg
>100kg	Discuss with haematology – unlicensed

- The washout needed for epidural analgesia is 72 hrs which must be explained to the patient
- They also must have a referral to the anaesthetist as the options for analgesia in labour will be different

Guideline for Investigation and Treatment of Thromboembolic Disease in Pregnancy and the postpartum period

Acute Management

Background

VTE continues to be a major cause of maternal death in the UK. VTE is 10 times more common in pregnant than in non-pregnant women of the same age. VTE can occur at any stage in a pregnancy, including the first trimester, but is more common in the puerperium. If a woman presents with any symptoms or signs suggestive of a VTE, particularly if there is a personal or family history, then she will require urgent investigation and treatment.

Symptoms and Signs of VTE

Leg pain and swelling (especially if unilateral)

Lower abdominal pain

Low grade pyrexia

Chest pain

Haemoptysis

Dyspnoea

Collapse

However, these symptoms and signs may be subtle.

Diagnosis of Acute VTE

Any woman presenting with signs and symptoms suggestive of a VTE should commence treatment with therapeutic doses of low molecular weight heparin (LMWH) until the diagnosis is excluded by objective testing, unless treatment is strongly contraindicated.

Who Should Care for a Pregnant or Recently Pregnant woman with a VTE?

Pregnant women should be promptly investigated and managed by a specialist team of senior physicians, senior obstetricians and in a place appropriate to their gestation.

Where the patient is haemodynamically unstable and complaining of chest pain and /or shortness of breath, they should be directed to the ED for stabilization and onward referral.

Outwith this scenario, the referral pathway will differ depending on whether a patient has been assessed by a medical professional and deemed to be stable.

Where the patient is referred in a stable clinical condition:

- **Patients with possible DVT** should be managed by the EGAU team where before 20 weeks gestation, or Maternity triage if 20 weeks gestation or above.
- **If women present via A and E with possible DVT, please ensure that the patient is referred immediately to the on call Obstetric/Gynae team.** These women are NOT managed via the Nurse led DVT clinic, but by the above senior team. Pregnancy is an exclusion criterion for the DVT clinic.
- **If being referred with possible PE** should be referred to the medical admissions unit under the care of medicine if early in pregnancy (**i.e. <20 weeks gestation**) or on the obstetric unit if later in pregnancy (**>20 weeks**), under Joint Care (Obstetric/Medical).

Where patients are self-referring and / or have not been assessed by a medical professional prior to presentation, then their stability cannot be guaranteed and should not report directly to EGAU / Maternity triage without a set of observations having been done. This cohort of patients should be referred to AMU GUH via flow centre (0300 3033557) for initial assessment. If their observations are abnormal (as defined by the Maternity Early Warning Score), then the patient will need escalating as per deteriorating patient guidelines.

If the observations are normal:

- <20 weeks gestation remains under medicine for workup.
- ≥ 20 weeks gestation, contact Maternity triage (x23530) to arrange review by obstetric team.

The approach to the management of these women should be multidisciplinary and involve Senior Obstetricians, Physicians, Radiologists and Haematologists. These women will be reviewed by an Acute Care Physician or Consultant Physician, as well as the responsible Consultant Obstetrician:

All antenatal women admitted through any other department or speciality within the Health Board **must** be reviewed by a Senior Obstetrician, and any care undertaken must then be in conjunction with the woman's obstetric plan of care. This will usually be for awareness only.

Investigations for Diagnosis of an Acute DVT

Compression duplex ultrasound should be undertaken. If the ultrasound is negative, anticoagulant treatment may be discontinued. If the clinical suspicion is high then anticoagulation should be continued and the scan repeated in 1 week.

When there is a suspicion of iliac vein thrombosis (whole limb swelling and back pain)

magnetic resonance venography or conventional venography may be considered on an individual patient basis in consultation with radiology.

Investigations for Diagnosis of an Acute Pulmonary Embolism

A chest x ray should be performed and compression duplex Doppler if the x ray is normal and there is any clinical suspicion of DVT. If both tests are negative, with persistent clinical suspicion, a perfusion scan or a computed tomography pulmonary angiogram (CTPA) should be considered. VQ scan is not offered in the HB at this time as a first line investigation, but can be arranged where there is diagnostic difficulty.

Informed consent should be obtained and the patient made aware of the risk of an undiagnosed PE and subsequent morbidity and mortality is greater than that from the radiation.

If the perfusion scan or CTPA is normal and there is no evidence on ultrasound of a DVT and clinical suspicion of a PE remains high then anticoagulant therapy should be continued until a PE is definitely excluded – this decision should be made by senior medical staff. If the x-ray is abnormal and there is a high clinical suspicion of a PE then a CTPA should be performed.

If the CTPA is inconclusive/suboptimal, please discuss the use of VQ scanning as a diagnostic tool with consultant radiologist. (Lead = Dr Brian Huey). It is vitally important to establish a correct diagnosis as therapeutic anticoagulation particularly around delivery has significant implications for the woman.

D-DIMER TESTING SHOULD NOT BE PERFORMED TO DIAGNOSE ACUTE VTE IN PREGNANCY.

It should be remembered that the d dimer may be raised in pregnancy due to the natural changes in haemostasis during pregnancy. The negative predictive value of D dimer is not sufficient to exclude DVT with a negative result in pregnancy. Wells scoring is also not validated in pregnancy and should not be used.

Investigations to Perform Before Initiating Heparin Therapy

Full Blood Count

Coagulation Screen

U&E's

LFT's

Additional Therapies in the Management of VTE in Pregnancy

Under the guidance of a Haematologist & Vascular Surgeon, in the presence of an iliac thrombosis consideration should be given to the use of an inferior vena caval filter if the patient presents peri delivery (36 weeks onwards)

Maintenance Treatment of VTE

Therapeutic doses of subcutaneous LMWH should be prescribed for the remainder of the pregnancy (100 units/kg twice daily dalteparin or 1mg/kg twice daily clexane if latex allergy)

Recommended treatment doses of dalteparin based on early pregnancy weight for PE and DVT

Early pregnancy weight				
	<50 kg	50-69 kg	70-89 kg	>90 kg
Dalteparin	5000 units bd	6000 units bd	8000 units bd	10,000 units bd
Clexane®	40mg bd	60mg bd	80mg bd	100mg bd
bd = twice daily				

Platelet counts and anti-Xa levels should be monitored under the guidance of a Consultant Haematologist. This assay should be performed 4 hours post dose of morning dalteparin.

Arrangements should be made to allow safe disposal of needles and syringes and out-patient specialist follow-up should be arranged in the haematology obstetric clinic at either NHH or RGH.

Oral anticoagulants should not be used in the management of VTE in the antenatal period except in certain circumstances for example extension of a venous thrombosis on therapeutic twice daily dalteparin. This should only be initiated after the teratogenic period of 6 - 12 weeks gestation has passed. This should always be done under the close guidance of a consultant haematologist with a specialist interest in obstetrics.

LABOUR and DELIVERY

Where Induction of labour or delivery is planned, LMWH should be discontinued 24 hours before. The aim should be as far as possible to maintain normality through labour and birth and reduce interventional procedures that will increase the risk of VTE. Women taking therapeutic doses of dalteparin/clexane should be managed on a case by case basis after careful discussion with the multi-disciplinary team.

A plan should be clearly made in the Obstetric notes by 36 weeks gestation by the Obstetric Haematology clinic team. The risks of haemorrhage from continued anti-coagulation should be balanced against the risks of a further thrombo-embolic episode. All these women must have correctly fitted, graduated elastic compression stockings on admission.

The woman taking LMWH maintenance dose who goes into spontaneous labour should be advised to discontinue immediately until post-delivery.

If delivery is by elective caesarean section, the treatment doses of LMWH should be omitted for 24 hours before surgery. A thromboprophylactic dose of LMWH should be given in the evening post operative delivery.

Anaesthesia

Involvement of a senior anaesthetist during the antenatal period is imperative. All eventualities should be discussed early in with reference to analgesia and anaesthesia with an antenatal documented plan of care. A senior anaesthetist should be contacted when the woman is admitted in labour or delivery planned.

Regional anaesthetic should not be undertaken for at least 24hours after the last dose of therapeutic LMWH.

The epidural catheter should not be removed within 12 hours of prophylactic LMWH injection and 24hours after therapeutic LMWH injection.

Surgery

A senior obstetrician should be in attendance at time of caesarean section for all women receiving therapeutic LMWH. Attention should be given to haemostasis before closure and a sheath drain as well as an intraperitoneal drain given consideration. Interrupted sutures for skin closure should be used.

The use of a Syntocinon infusion 10units/hour should be considered following placental delivery.

Post Partum Management in presence of confirmed VTE.

Once haemostasis is secure, give prophylactic LMWH within 12hrs of delivery. After 24 hrs restart therapeutic dose according to the patients' weight – see below.

Recommended dosage of once daily LMWH (post natal therapeutic dose) for adults

Weight (kg)	Dalteparin	Clexane
<45	7 500 units	60mg
46-56	10 000 units	80mg
57-68	12 500 units	100mg
69-82	15 000 units	120mg
83 and over	18 000 units	150mg

For dalteparin - once daily administration 200 units/kg body weight according to weight ranges. The single daily dose should not exceed 18 000 units. Single dose syringes are available.

Standard duration of treatment of DVT or PE in pregnancy is for the duration of the pregnancy and for at least 6 weeks post natally. Some patients may require three months of treatment post delivery if they present close to term. These patients should all be referred to the haematology clinic for counselling and further investigation post delivery

The Woman who is at a High Risk of Bleeding but requires Anticoagulation

- When continued heparin treatment is considered essential, unfractionated IV heparin should be used.
- **Protamine sulphate can be used to reverse the effects in discussion with the Haematologist.**
- Involvement of a senior haematologist is essential and consideration given to referral to a tertiary unit

Post Natal Anticoagulation

- Post delivery restart IV heparin until the risk of bleeding is reduced. Once haemostasis is secure, convert to therapeutic dalteparin once daily for at least 6 weeks. Follow up in a specialist Haematology Clinic should be arranged on completion of treatment. Warfarin can be considered and both LMWH and Warfarin are safe in breastfeeding mothers. Warfarin should be commenced on the recommendation of the Haematologist and dalteparin continued until therapeutic doses are reached.

Management of Life-Threatening Pulmonary Embolism

CONTACT CONSULTANT ANAESTHETIST, CHEST PHYSICIAN AND HAEMATOLOGIST IMMEDIATELY FOR ADVICE

Massive PE?

If suspect massive PE (definition: one so severe as to cause circulatory collapse i.e. BP<90 systolic, HR >120) or signs of shock:

Airway, Breathing, Circulation

Arrange EMERGENCY CTPA with radiologists (contact duty radiologist within normal working hours, or out-of-hours contact the radiology consultant on call via switchboard). Imaging should be performed as soon as possible, ideally within an hour.

If collapsed patient/ too unwell for CTPA: consider emergency referral to cardiologists for urgent echocardiogram/ consider thrombolysis on clinical grounds.

- All patients should have FBC, coagulation screen, urea and electrolytes, liver function tests, ECG, CXR and arterial blood gases performed.
- Patients on oral anticoagulants or LMWH (prophylactic or therapeutic doses) should proceed directly to imaging investigations.

Patients in whom investigations show an alternative cause for the symptoms i.e. pneumothorax, heart failure, rib fracture do not need further investigations to exclude a PE and should be managed by the relevant specialty.

Massive PE:

- Ensure patient in appropriate resus environment and multidisciplinary team aware.
- When diagnosis is considered, immediately bolus UFH (5000IU) followed by maintenance infusion, pending results of investigations.
- Appropriate resuscitation if shocked.
- IF CARDIAC ARREST IS IMMINENT: CONSIDER THROMBOLYSIS ON CLINICAL GROUNDS
- Diagnosis confirmed and BP <90 mmHg: THROMBOLYSE
- If cardiac arrest seems imminent and thrombolysis is either failing or contraindicated, consider mechanical thrombectomy - contact UHW
- If uncertainty regarding thrombolysis contact physician (preferably respiratory, acute medicine, or cardiology) on call.
- Patients should be managed on a Level 2 Unit
- High flow oxygen to maintain O₂ saturations >94%; 28% O₂ if patient known to have COPD- monitor arterial blood gases

Submassive PE (PE with evidence of right heart strain but without hypotension):

- Current evidence does not support the use of thrombolysis in these patients. Thrombolysis has been shown to improve haemodynamic parameters more rapidly than heparin, but does not reduce mortality or morbidity.
- Recurrent PE is the principal cause of death in haemodynamically stable patients with PE: thrombolysis does not reduce the rate of recurrent PE when compared with heparin
- Consideration should be given to managing patients with submassive PE in a closely monitored environment (at least level 1) so that emergency thrombolysis can be given if clinical condition deteriorates.
- Anticoagulate as below for 'Haemodynamically stable patients with PE'.

Thrombolysis in pregnancy is likely to induce termination: discuss with obstetricians and consider caesarean section.

- Patients at high risk of bleeding, (or if anticoagulation may have to be rapidly reversed) should be given a bolus of unfractionated heparin (5000IU) followed by maintenance UFH infusion (monitor APTT ratio 4 hrly until stable).
- Consider IVC filter if episode of VTE close to due date (discuss with interventional vascular radiologists).
- All patients should be under joint consultant obstetric/medicine consultants. Consider discussing with respiratory physician and/or haematologists if concern.
- All women with negative investigations should be reviewed in the antenatal clinic a week after the investigations, by their own team. This is regardless of whether clinical suspicion is high or low.

Appendices

Appendix 1 - Flow Chart for Obstetric Patients with Previous Venous Thromboembolism (DVT/PE)

Appendix 2 - Antenatal Clinic ABUHB: Management of Obstetric patients prescribed antenatal thromboprophylaxis for BMI > 45

Appendix 3 ABUHB Maternity Services Outpatient Dalteparin Prescription in ANC

Appendix 4 ABUHB Midwifery Supply of Dalteparin Patient Information Sheet

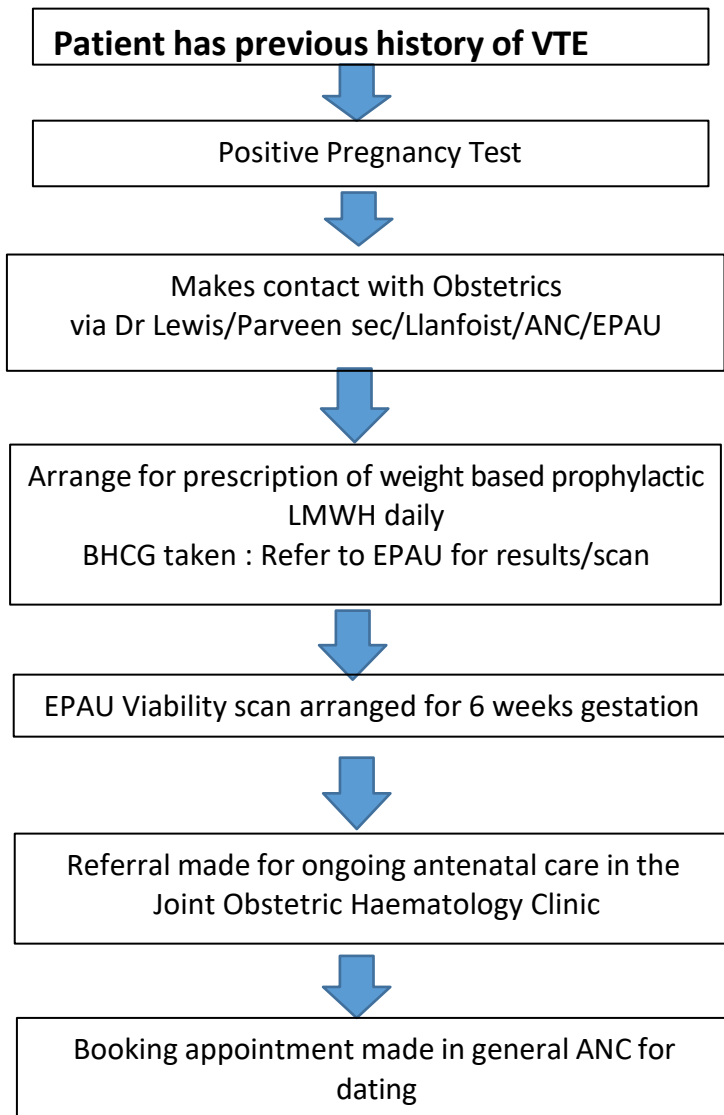
Appendix 1



Flow Chart for Obstetric Patients with Previous Venous Thromboembolism (DVT/PE)

When diagnosed with DVT/PE, the risks of VTE recurrence in pregnancy are explained to the patient as well as the need for thromboprophylaxis in any future pregnancies, given the high risk of VTE recurrence in patients.

Patients are given a letter from DVT clinic which gives them the contact details to call when they become pregnant, to ensure they are seen in and commenced on LMWH prophylaxis as soon as possible, and that a viability scan is performed.





<p>Patient Details</p>

Date.....

Seen By.....

Obstetrician

Dr Lewis Sec 01873732259

Mrs

Parveen 01633 234612

Date		Signed
Date of Previous DVT/PE		
Weight		
LMP		
Dose of LMWH		
Explained to patient how to give injection		
Sharps box given to patient		
BHCG taken		
Viability scan arranged		
Referral made to Obs Haem clinic		
Referral for general Booking apt.		

Appendix 2



Antenatal Clinic ABUHB Management of Obstetric patients prescribed antenatal thromboprophylaxis for BMI > 45

- Patients are risk assessed at booking
- If BMI > 45 they should be offered LMWH

Booking Weight	91-130kg	131 kg +
Dalteparin Dose	7500 IU daily	10,000 IU once daily
Clexane Dose	60mg once daily	80mg once daily

- If BMI >50 kg/m² or weight >150kg please check Anti Xa level after 2 weeks
- This should be taken 4 hours post injection in a **blue top** citrated vacutainer. Please ensure the bottle is properly filled
- Anti Xa desired thromboprophylactic range: 0.05-0.15 IU
- If levels outside of this range, please contact Dr Lewis for guidance regarding dose adjustment
- All patients on LMWH should be referred to the anaesthetist
- All patients on LMWH should be seen by their locality consultant obstetrician

Consultant Haematologist	Sarah Lewis	sarah.lewis4@wales.nhs.uk	01873 732259
Consultant Obstetrician	Sajitha Parveen	sajitha.parveen@wales.nhs.uk	01633 238786

Appendix 3 ABUHB Maternity Services Outpatient Dalteparin Prescription

 Bwrdd Iechyd Prifysgol Aneurin Bevan University Health Board		ABUHB Maternity Services Outpatient Dalteparin Prescription		 Bwrdd Iechyd Prifysgol Aneurin Bevan University Health Board	
Use: To be used for pregnant women requiring a prescription for pharmacological thromboprophylaxis with dalteparin subcutaneous injections (prescription-only medicine) at antenatal clinic visit. If patient has a latex allergy then will need clexane Please assess all pregnant women for their risk of venous thromboembolism on the 'Thromboprophylaxis Risk Assessment for Pregnant Women' (pink) form before completing this prescription form.					
Section 1: Patient Details (to be completed by Registered Midwife)					
Addressograph			Date:		
			Consultant:		
			Booking weight (kg):		
			Current gestation:		
Patient allergies: None known / Yes If yes, drug allergen..... Description of reaction.....					
Section 2: Regimen					
To be completed by Clinician/Consultant					
Indication for pharmacological thromboprophylaxis with dalteparin (state below):					
Dose of dalteparin (please tick):					
Dalteparin subcutaneous injection		2,500 units once daily (booking weight <50kg)			
		5,000 units once daily (booking weight 50-90kg)			
		7,500 units once daily (booking weight 91-130kg)			
		10,000 units once daily (booking weight >130+kg)			
Duration of treatment (please tick):					
Until the patient completes the course which has been supplied					
Until the patient returns to hospital for further assessment and is advised to stop					
Number of syringes to be supplied:					
Print Name of Prescriber:			Signature of Prescriber:		Date:
Section 3: Dispensing (to be completed by Registered Midwife)					
Dispensing Procedure*:					
Two Registered Midwives to check:					
<ul style="list-style-type: none"> ✓ Correct patient details on prescription ✓ Prescription completed in full and signed and dated by prescriber ✓ Allergy status ✓ Correct medication dispensed (name, form, strength) ✓ Expiry date ✓ Correct quantity ✓ Label is fully completed in accordance with POM guidelines 					
					Initials
Sharps bin provided					
Patient information sheet provided and explained to patient					
Name of clinician/Registered Midwife assembling medication:			Signature of clinician/Registered Midwife assembling medication:		
Name of clinician/Registered Midwife accuracy checking medication:			Signature of clinician/Registered Midwife accuracy checking medication:		

Prescription to be filed in patient's notes following dispensing.

*Please refer to ABUHB 'TTH/Discharge Supply by Nurses and Midwives' policy for further guidance

Appendix 4 ABUHB Midwifery Supply of Dalteparin Patient Information Sheet**Midwifery Supply of Dalteparin****Patient Information Sheet**

Affix patient
addressograph:

**Antenatal Clinic Telephone
Number:**

Contact details in Badgernet app.

01633 234747 (RGH)

01873 732391 (NHH)

01495 768618 (County)

01443 802437 (YYF)

You have been started on LMWH for the prevention of blood clots

You have been supplied with dalteparin/clexane injections.

- 1.) Your dose is as per labelled instructions. Follow the directions on the label.
- 2.) You are required to stay on these injections (*delete those not required*):
 - Until you complete the course which has been supplied
 - Until you return **for further assessment and are advised to stop**
- 3.) The midwife supplying the injections will show you how to administer the LMWH and will supply a yellow sharps bin for disposal of used syringes.
- 4.) Some patients may need blood test monitoring – these tests will be organised via the clinic
- 5.) **If you are pregnant and receiving dalteparin from the antenatal clinic, please contact the clinic one week before you run out of injections to arrange for further supply**

Appendix 5. Patient flow, ED / ANC / AMU Triage and ABUHB Flow Centre

THIS ONLY APPLIES WHERE THE PRESENTING COMPLAINT IS ?DVT OR ?PE

1: Unstable pregnant patient – as defined by Maternity Early Warning Score of ≥ 2

Vital signs	Score				
	2 points	1 point	0 points	1 points	2 points
Respiratory rate (breaths/min)	≤ 6	7-8	9-21	22-24	≥ 25
Oxygen saturation (%)	≤ 92	93-94	≥ 95	—	—
Temperature (°C)	≤ 34.8	34.9-35.5	35.6-37.2	37.3-37.5	≥ 37.6
Pulse rate (beats/min)	≤ 62	63-70	71-112	113-121	≥ 122
Systolic blood pressure (mm Hg)	≤ 93	94-100	101-135	136-144	≥ 145
Diastolic blood pressure (mm Hg)	≤ 56	57-61	62-88	89-96	≥ 97

These patients should be directed to ED for stabilisation.

2: Stable pregnant patient - ?DVT.

- These patients are managed by Maternity services. Refer to EGAU team if before 20 weeks gestation, or Maternity triage if 20 weeks gestation or above.
- **If women present via the Emergency Department with possible DVT, please refer to the on call Obstetric/Gynaecology team.** These women are NOT managed via the Nurse led DVT clinic, but by the above senior team.
 - Pregnancy is an exclusion criterion for the DVT clinic.

3: Stable pregnant patient with ?PE (usually SOB or chest pain).

- Refer to the **medical admissions unit** under the care of medicine if early in pregnancy (**i.e. <20 weeks gestation**).
- Refer to the **obstetric unit** if later in pregnancy (**>20 weeks**), under Joint Care (Obstetric/Medical).

4: Where patients are self referring and no observations are available.

- Due to no resuscitation facilities in maternity triage, need to ensure stability.
- When taking the call, **refer to AMU GUH** (not eLGH) via flow centre (0300 3033557) for initial assessment.
- On arrival they will have observations and initial assessment.
 - If their observations are abnormal (as defined by the Maternity Early Warning Score ≥ 2), then escalate as per deteriorating patient guidelines, with early senior obstetric and medical review.
- If the observations are normal, same gestational cut off as above:
 - <20 weeks gestation remains under medicine for workup.
 - ≥ 20 weeks gestation, contact GUH Maternity triage immediately (x23530) to arrange review by obstetric team.