Whittington Health NHS

Thromboembolism Prophylaxis During and After Pregnancy

Subject:	Thromboembolism Prophylaxis During and After Pregnancy
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Designation of Author:	Christina Legit (ST7 O&G) Miss Kyei-Mensah (Consultant O&G)
Name of Assurance Committee:	Maternity Clinical Guideline and Audit Group
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Target Audience:	Obstetricians, Midwives, Anaesthetists, Nurses
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Version Control Sheet

Version	Date	Author	Status	Comment
4	Nov 2012	Miss Kyei-Mensah Miss G Henson	Out of Date	Review and Update
5	Oct 2015	Christina Legit Miss Kyei-Mensah	Current	Re-formatted into new template and review

➢ Criteria for use

All pregnant women at booking and at any admission during pregnancy.

To prevent thromboembolism occurring during and after pregnancy.

➢ Background/ introduction

Pulmonary thromboembolism (PTE) is once again the leading direct cause of maternal death in the UK (MBRRACE-UK 2009-2012)

79% of those dying from PTE had identifiable risk factors, as did 70% of women identified in the UK Obstetric Surveillance System cohort of antenatal PTE (CEMACH 2007).

55% of postpartum maternal deaths from venous thromboembolism (VTE) between 1997 and 2005 occurred after vaginal delivery.

The relative risk of VTE in pregnancy is increased 4-6 fold and further in the puerperium. However the absolute risk is low with an overall incidence of VTE in pregnancy and the puerperium of 1-2:1000

The time of highest risk for VTE is postpartum however one third of fatal thromboembolism occurs in the 1st trimester.

➢ Clinical management

- All women should have a risk assessment carried out at booking or pre-pregnancy and at every hospital admission in the antenatal period, in labour and on admission to the postnatal ward.

- All risk assessments should be repeated 24 hours after any hospital admission.

- A Trust VTE assessment form should be completed at all hospital admissions antenatally, in labour and in the postnatal ward and then repeated again 24 hours later. The assessment form is completed on-line on Anglia ICE and a

printed copy of the form should be filed in the district note file. See Appendix 2 for assessment form

- The section on risk assessment for thromboprophylaxis should be completed on in-patient Drug Prescription charts and the method of thromboprophylaxis prescribed i.e. TED stockings, **low molecular weight heparin (LMWH)** depending on whether they are high or low risk.

- All women should be advised regarding mobility, hydration and the use of TED stockings during any admission.

- If thromboprophylaxis is required during pregnancy an appropriate management plan must be documented in the notes.

- **Any woman with four or more risk factors*** shown in Appendix 1 should be considered for prophylactic LMWH throughout the antenatal period and will usually require prophylactic LMWH for 6 weeks postnatal.

- **Any woman with three risk factors*** shown in Appendix 1 should be considered for prophylactic LMWH from 28 weeks onwards and will usually require prophylactic LMWH for 6 weeks postnatal.

- **Any woman with two current risk factors** shown in Appendix 1 should be considered for prophylactic LMWH for at least 10 days postpartum

- Women admitted to hospital during pregnancy should usually be offered thromboprophylaxis unless there is a specific contraindication

*****other than previous VTE and thrombophilia

4+ risk factors – thromboprophylaxis from first trimester

3 risk factors – thromboprophylaxis from 28 weeks

2+ risk factors – 10 days postnatal thromboprophylaxis

Antenatal	**Postnatal**
Obesity (BMI > 30kg/m²)	Obesity (BMI >30kg/m²)
Age > 35	Age > 35
Parity >- 3	Parity > 3
Smoker	Elective C/S
Gross varicose veins	Family History of VTE
Current PET	Low risk thrombophilia
Immobility	Gross varicose veins
Family History of unprovoked or estrogen provoked VTE in 1st degree relative	Current systemic infection
Low risk thrombophilia	Immobility
Multiple pregnancy	Current PET
IVF	Multiple pregnancy
	Preterm delivery in this pregnancy
	Stillbirth in this pregnancy
	Mid cavity rotational or operative delivery
	Prolonged labour (>24h)
	PPH > 1 l or blood transfusion
	Smoker

➢ First trimester risk factors

Hyperemesis gravidarum - considered for LMWH until the hyperemesis resolves.

Ovarian hyperstimulation syndrome (OHSS) – consider LMWH thromboprophylaxis in the first trimester.

Intermediate risk – consider antenatal thromboprophylaxis, at least 10 days postnatal prophylaxis

Antenatal	**Postnatal**
Hospital admission	Caesarean section in labour
Single previous VTE related so surgery	BMI >40kg/m²
High risk thrombophilia and no previous VTE	Readmission or prolonged admission (>3/7)
Medical comorbidities (cancer, heart failure, SLE, IBD, inflammatory polyarthropathy, nephrotic syndrome, type I DM with nephropathy, SSD, IVDU)	Any surgical procedure in the puerperium
Any surgical procedure	Medical comorbidities (cancer, heart failure, SLE, IBD, inflammatory polyarthropathy, nephrotic syndrome, type I DM with nephropathy, SSD, IVDU)
OHSS (first trimester only)	

➢ Women with previous VTE

Single previous VTE

Offer pre-pregnancy counselling (PPC).
A prospective management plan should be documented in the notes.

If no PPC - refer to an obstetric medicine clinic (Miss Kyei-Mensah or Mr Ashokkumar) as soon as possible.

If VTE was unprovoked, idiopathic or related to oestrogen offer antenatal thromboprophylaxis throughout pregnancy and for 6 weeks postnatal.

If VTE was associated with major surgery with no other risk factors commence thromboprophylaxis at 28 weeks gestation. Monitor closely for the development of additional risk factors.

High risk – antenatal thromboprophylaxis, and for 6 weeks postnatal

Antenatal	**Postnatal**
Any previous VTE (except a single event related to surgery)	Any previous VTE
	Anyone requiring antenatal LMWH
	High risk thrombophilia
	Low risk thrombophilia and Family history

Previous recurrent VTE

Seek LMWH dosing advice from a clinician with expertise in haemostasis and pregnancy.

Some women require higher doses of LMWH

If not on anticoagulant treatment outside pregnancy - start LMWH as soon as positive pregnancy test is obtained.

If on long term warfarin – counsel about fetal risks. Change to LMWH as soon as pregnancy is confirmed, ideally within 2 weeks of the missed period and before 6 weeks gestation.

➢ Thrombophilia associated VTE

Heritable Thrombophilia

Antithrombin deficiency and previous VTE - offer high dose LMWH thromboprophylaxis (i.e. 50%, 75% or full treatment dose) antenatally and for 6 weeks postpartum or until oral anticoagulant therapy is resumed after delivery.

Other heritable thrombophilic defects are lower risk - use standard thromboprophylaxis doses.

Acquired thrombophilia

Anitphospholipid syndrome and previous VTE – offer high dose LMWH thromboprophylaxis (i.e. 50%, 75% of full treatment dose) antenatally and for 6 weeks postpartum or until oral anticoagulant therapy is resumed after delivery

Asymptomatic heritable thrombophilia

Asymptomatic antithrombin, protein C or S deficiency or those with more than one thrombophilic defect (homozygous factor V Leiden, homozygous prothrombin gene mutation and compound heterozygotes. Consider antenatal thromboprophylaxis & postnatal thromboprophylaxis for 6 weeks.

Heterozygosity of factor V Leiden and prothrombin gene mutation or antiphospholipid antibodies (lupus anticoagulant and/or anticardiolipin and/ or ß2 –glycoprotein antibodies) are considered as risk factors for thrombosis and should be managed depending on the presence of other risk factors.

Women with no personal history or risk factors of VTE but who have a family history of an unprovoked or oestrogen related VTE in a first degree relative aged under 50 should be referred for Thrombophilia testing.

➢ THROMBOPROPHYLAXIS DURING LABOUR AND DELIVERY

Women on antenatal thromboprophylaxis - advise not to inject any further LMWH if they start bleeding or show any signs of labour.

Regional anaesthesia should be avoided until **at least 12 hours after** the previous prophylactic dose of LMWH.

Regional anaesthesia should be avoided until **at least 24 hours after** the previous therapeutic dose of LMWH.

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

The epidural catheter should not be removed **within 12 hours** of the most recent injection.

➢ POSTPARTUM THROMBOPROPHYLAXIS

Give the first dose of LMWH as soon as possible after delivery provided there is no PPH and regional anaesthesia has not been used.

Women with BMI >40kg/m² - for 10 days postnatal LMWH.

2 or more risk factors as listed in Appendix 1 for 10 days postnatal LMWH.

History of previous VTE - offer thromboprophylaxis with LMWH or Warfarin for at least 6 weeks regardless of the mode of delivery.

Thrombophilia without previous VTE - consider thromboprophylaxis depending on type of thrombophilia, family history or other risk factors.

Post Emergency Caesarean Section - for 10 days postnatal LMWH.

Post Elective Caesarean Section - offer 10 days postnatal LMWH if they have additional risk factors.

Additional persistent risk factors e.g. prolonged admission, wound infection, surgery –extend thromboprophylaxis for up to 6 weeks or until the risk factor is no longer present.

➢ PRESCRIBING

Thromboprophylaxis includes:

- Advice on mobility and hydration
- TED stockings
- Low molecular weight heparin (LMWH) Tinzaparin
- Women on long term warfarin anticoagulation can be converted from LMWH to Warfarin on D 5-7 postpartum if/when the risk of haemorrhage is reduced.

Tinzaparin is the low molecular weight heparin being used in Whittington Health. The dose of Tinzaparin is determined by maternal weight.

The woman's booking weight should be used to determine the required dose of Tinzaparin.

Booking weight should be documented on JAC or at the front of a paper drug chart, at the time of prescribing.

If booking weight is unknown use the most recent weight to guide dosage.

Tinzaparin thromboprophylaxis dosing schedule based on maternal weight.

Maternal weight	Tinzaparin
<50 Kgs	3,500 IU daily
50-90 Kgs	4,500 IU daily
91-130 Kgs	7,000 IU daily
131-170 Kgs	9,000 IU daily
>170 Kgs	75 IU/kg /day

Antenatal Out-patients

- Tinzaparin will be prescribed depending on the weight (see table above).
- Prescribe Tinzaparin an out-patient prescription form or via JAC .

Antenatal admissions

- Give the first dose at 22:00 hrs

Postnatal prescribing

Women who have not had an epidural in labour or for caesarean section

The first dose is to be given at 10.00 hrs if delivery occurred after 22.00hrs.

The first dose is to be given at 22.00 hrs if delivery occurred after 10.00 hrs.

Women who have had an epidural

- Give Tinzaparin 4,500 IU (or appropriate weight related dose) at 22.00 hrs to women who have had the epidural catheter removed after delivery or caesarean section between 06.00 hrs and 18.00 hrs

- Tinzaparin 4,500 IU (or appropriate weight related dose) should be given (SC) at 10.00 am to women who have had a vaginal delivery and had the epidural catheter removed between 18.00 hrs and 06.00 hrs.

After delivery, the midwife records the time of removal of the epidural catheter. The obstetrician will prescribe the Tinzaparin at 10.00 hrs or 22.00 hrs as appropriate.

After caesarean section, the anaesthetist will prescribe the Tinzaparin at 10.00 or 22.00 as appropriate.

Breast-feeding:

- It is safe to breast feed as heparin is not excreted in breast milk and there is no contraindication to breast feeding

- Warfarin is also safe for breast feeding

➢ Further information

- **RCOG Green Top Guideline No 37a. Reducing the Risk of Venous Thromboembolism during pregnancy and the Puerperium. April 2015**

	Please see Whittington Hospital NHS Trust Guideline: Under Services A-Z - Venous Thromboembolism - Maternity Venous Thromboembolism

➢ Contacts (inside and outside the Trust including out-of-hours contacts)

Miss Kyei-Mensah, Consultant Obstetrician

Mr Ashokumar, Consultant Obstetrician

Obstetric Consultant on - call

Dr Davies (Haematology Consultant)

Dr Rismani (Haematology Consultant)

Dr Shah (Haematology Consultant)

➢ References (evidence upon which the guideline is based)

- Report of the RCOG Working Party on Prophylaxis against Thromboembolism in Gynaecology and Obstetrics March 1995 RCOG Press

- Saving Mothers Lives. Reviewing maternal deaths to make motherhood safer. The seventh report on Confidential Enquiries into Maternal Deaths in the United Kingdom. CEMACH 2007

- Regional Anaesthesia in the Anticoagulated Patient: Defining the Risks (The second ASRA Consensus Conference on Neuraxial Anesthesia and Anticoagulation) Horlocker et al. Regional Anesthesia and Pain Medicine May/June 2003;28,3

- **RCOG Green Top Guideline No 37a. Reducing the Risk of Venous Thromboembolism during pregnancy and the Puerperium. April 2015**

- National Institute for Health and Clinical Excellence (2004) Caesarean Section. London NICE Available at www.nice.org.uk

- National Institute for Health and Clinical Excellence (2007) Intrapartum Care: Care of healthy women and their babies during childbirth. London NICE Available at www.nice.org.uk

- **Compliance with this guideline (how and when the guideline will be monitored e.g. audit and which committee the results will be reported to) Please use the tool provided at the end of this template**

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval

		Yes/No	Comments
1.	**Does the procedural document affect one group less or more favourably than another on the basis of:**		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
	• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
2.	**Is there any evidence that some groups are affected differently?**	No	
3.	**If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?**	No	
4.	**Is the impact of the procedural document likely to be negative?**	No	
5.	**If so can the impact be avoided?**	N/A	
6.	**What alternatives are there to achieving the procedural document**	N/A	

		Yes/No	Comments
	without the impact?		
7.	**Can we reduce the impact by taking different action?**	N/A	

If you have identified a potential discriminatory impact of this procedural document, please refer it to the Director of Human Resources, together with any suggestions as to the action required to avoid/reduce this impact.

For advice in respect of answering the above questions, please contact the Director of Human Resource

Checklist for the Review and Approval of Procedural Document

To be completed and attached to any procedural document when submitted to the relevant committee for consideration and approval.

	Title of document being reviewed:	**Yes/No**	**Comments**
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Is it clear that the relevant people/groups have been involved in the development of the document?	Yes	
	Are people involved in the development?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
5.	**Evidence Base**		

	Title of document being reviewed:	Yes/No	Comments
	Are key references cited in full?	N/A	
	Are supporting documents referenced?	N/A	
6.	**Approval**		
	Does the document identify which committee/ group will approve it?	Yes	
7.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	Yes	
8.	**Document Control**		
	Does the document identify where it will be held?	Yes	
9.	**Process to Monitor Compliance and Effectiveness**		
	Are there measurable standards or KPIs to support the monitoring of compliance with and effectiveness of the document?	Yes	
	Is there a plan to review or audit compliance with the document?	Yes	
10.	**Review Date**		
	Is the review date identified?	Yes	
	Is the frequency of review identified? If so is it acceptable?	Yes	
11.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes	

Executive Sponsor Approval
If you approve the document, please sign and date it and forward to the author. Procedural documents will not be forwarded for ratification without Executive Sponsor Approval

Name		Date	
Signature			
Relevant Committee Approval			
The Director of Nursing and Patient Experience's signature below confirms that this procedural document was ratified by the appropriate Governance Committee.			
Name		Date	
Signature			
Responsible Committee Approval – only applies to reviewed procedural documents with minor changes			
The Committee Chair's signature below confirms that this procedural document was ratified by the responsible Committee			
Name		Date	
Name of Committee		Name & role of Committee Chair	
Signature			

Tool to Develop Monitoring Arrangements for Policies and guidelines

What key element(s) need(s) monitoring as per local approved policy or guidance?	Who will lead on this aspect of monitoring? Name the lead and what is the role of the multidisciplinary team or others if any.	What tool will be used to monitor/check/observe/Assess/inspect/ authenticate that everything is working according to this key element from the approved policy?	How often is the need to monitor each element? How often is the need complete a report? How often is the need to share the report?	What committee will the completed report go to?
Element to be monitored	**Lead**	**Tool**	**Frequency**	**Reporting arrangements**