Standard Operational Procedure for Prevention and Treatment of Venous Thromboembolism (VTE) In Pregnancy

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ANTENATAL VTE RISK ASSESSMENT

Pre-existing Risk Factors	Tick	Score
Previous VTE		4
Known high-risk thrombophilia (Anti-thrombin deficiency, homozygous factor V Leiden, Protein C or S deficiency)		3
Medical co-morbidities e.g. cancer, heart failure; active systemic lupus erythematosus, inflammatory polyarthropathy or inflammatory bowel disease; nephrotic syndrome; type I diabetes mellitus with nephropathy; sickle cell disease; current intravenous drug user		3
Family history of VTE in first-degree relative		1
Known low-risk thrombophilia (prothrombin gene mutation or factor V Leiden heterozygous, antiphospholipid antibodies)		1
Age (> 35 years)		1
BMI 30-40		1
BMI >40		2
Parity ≥ 3		1
Smoker		1
Gross varicose veins		1
Pre-eclampsia in current pregnancy		1
IVF		1
Multiple pregnancy		1
Stillbirth in current pregnancy		1
Transient Risk Factors		
Any surgical procedure in pregnancy		2
Hyperemesis		2
Ovarian Hyper-stimulation syndrome		2
Current systemic infection		1
Immobility, dehydration		1
Admission to hospital > 24hrs		1

RISK ASSESSMENT TIMING	TOTAL SCORE	Date	Initial
At Booking appointment			
After 12 week scan			
Antenatal admission ward round			
Antenatal admission ward round			
Antenatal admission ward round			
Antenatal admission ward round			

Score 2 – Enoxaparin if admitted

Score 3 – Enoxaparin from 28 weeks

Score 4 – Refer next available ANC to start enoxaparin

Weight	Enoxaparin dose
<50Kg	20mg OD
50-90Kg	40mg OD
91-130Kg	60mg OD
131-170Kg	80mg OD

POSTNATAL VTE RISK ASSESSMENT

Pre-existing Risk factors	Tick	Score
Previous VTE		High Risk
Known high-risk thrombophilia (Antithrombin deficiency, homozygous factor V Leiden, Protein C or S deficiency)		
Low risk thrombophilia + VTE in 1st degree relative		
Family history of VTE in first-degree relative		1
Known low-risk thrombophilia (prothrombin gene mutation or factor V Leiden heterozygous, antiphospholipid antibodies)		1
Medical co-morbidities e.g. cancer, heart failure; active systemic lupus erythematosus, inflammatory polyarthropathy or inflammatory bowel disease; nephrotic syndrome; type I diabetes mellitus with nephropathy; sickle cell disease; current intravenous drug user		2
Age (> 35 years)		1
BMI 30-40		1
BMI >40		2
Parity ≥ 3		1
Smoker		1
Gross varicose veins		1
Obstetric Risk Factors		
Pre-eclampsia in current pregnancy		1
Multiple pregnancy		1
Caesarean section in labour		2
Elective caesarean section		1
Mid-cavity or rotational operative delivery		1
Prolonged labour (> 24 hours)		1
PPH (> 1 litre or transfusion)		1
Preterm birth < 37+0 weeks in current pregnancy		1
Stillbirth in current pregnancy		1
Transient Risk Factors		
Any surgical procedure in puerperium		2
Current systemic infection		1
Immobility, dehydration		1
Re-admission to hospital > 24hrs		2

RISK ASSESSMENT TIMING	TOTAL SCORE	Date	Initial
Immediate Post Partum			
Postnatal admission ward round			
Postnatal admission ward round			
Postnatal admission ward round			

High Risk Factor –
Enoxaparin for 6 weeks

Score 2 or more –
Enoxaparin for 10 days

Weight	Enoxaparin dose
<50Kg	20mg OD
50-90Kg	40mg OD
91-130Kg	60mg OD
131-170Kg	80mg OD

1. Purpose/Background

The purpose of this document is to provide guidance on the prevention of venous thromboembolism (VTE) for women during pregnancy and the puerperium. It also explains the steps that should be taken to investigate and treat women presenting with symptoms and signs of VTE.

Pregnancy is a risk factor for VTE and is associated with a ten-fold increase compared with the risk for non-pregnant women. VTE remains the most common direct cause of maternal death in the UK with a rate of 41/100 000 maternities in the most recent CEMACH report. Although most VTE occur antenatally, the risk per day is greatest in the weeks immediately after delivery.

2. Scope:

This document is for use by all obstetricians and midwives. It applies to all women cared for by St Mary's Maternity Services.

3. Responsibilities

It is the responsibility of all Midwifery Nursing and medical staff to access read understand and apply this guidance and attend any mandatory training pertaining to the guidance

It is the responsibility of the department to ensure the guideline is reviewed as required in line with trust and national recommendations and ensure the guideline is accessible to all relevant staff.

4. Procedure:

4.1 Risk Assessment

All women should undergo an assessment of risk factors for VTE at the following times

1. At the midwifery booking appointment
2. At the 12 week scan appointment.
3. At every antenatal admission
4. Post partum before transfer from labour ward
5. For any post partum admission

This is done by filling in the risk assessment form in the antenatal notes for antenatal women and in the postnatal notes for postnatal women (see assessment tool)

4.2 Action in response to risk factors

Following each risk assessment a score is generated. Action according to the score is as follows

Antenatal

Score 2 or more: Requires enoxaparin for any antenatal admission

Score 3 or more: Requires enoxaparin from 28 weeks

Score 4 or more: Requires enoxaparin to start ASAP

Post natal

Score 2 or more: Requires enoxaparin for 10 days

High risk factor: requires enoxaparin for 6 weeks

4.3 Care during labour and delivery for women on antenatal thromboprophylaxis

- Once the woman is in labour or thinks she is in labour, she should be advised not to inject any further Clexane. She should be reassessed on admission to hospital and further doses if required should be prescribed by medical staff.
- Women receiving high prophylactic or therapeutic doses of clexane should have the dose reduced to a standard thromboprophylactic dose on the day before induction of labour or elective caesarean section and continued on this dose during labour.
- To minimise the risk of epidural haematoma, regional techniques should not be used until at least 12 hours after a prophylactic dose of Clexane and 24 hours after a therapeutic dose.
- For delivery by elective caesarean section, the woman should receive the normal thromboprophylactic dose of Clexane on the day before delivery but on the day of delivery, the morning dose should be omitted

4.4 Timing of administration of post partum Clexane

- If required, clexane should be commenced within 6 hours of birth except in cases of PPH when it should be withheld until bleeding has settled and thromboembolic stockings used in the interim.
- If the woman has been given regional analgesia, Clexane should be withheld until four hours after insertion or removal of the epidural catheter (or six hours if either insertion or removal were traumatic)

4.5 Continuation of clexane following discharge from hospital

All women will be shown how to administer their own clexane prior to discharge. They will be issued with appropriate amount and dose and a sharps box will be given to them.The community midwife should ensure that the women is administering her own clexane appropriately

4.6 Dosage of prophylactic clexane

The dose is weight dependent. Provided that there have been no significant changes in weight during the pregnancy, the booking weight can be used.

Weight (Kg)	**< 50**	**50 – 90**	**91-130**	**131 – 170**	**> 170**
Enoxaparin dose / day	20mg	40mg	60mg	80mg	0.6mg/kg

4.7 Investigation of suspected VTE

- Any woman with signs and symptoms suggestive of VTE should be reviewed by the on call medical team.
- If clinical suspicion of VTE is high, treatment with a therapeutic dose of Clexane should be employed until a diagnosis is excluded.
- **Extra vigilance and a lower threshold for starting treatment should be used when women with known risk factors for VTE present with symptoms.**

- Compression duplex ultrasound should be undertaken where there is clinical suspicion of deep vein thrombosis (DVT). If ultrasound is negative and there is a low level of clinical suspicion, anticoagulant treatment can be discontinued.
- Where there is clinical suspicion of acute pulmonary thromboembolism (PTE) a chest X-ray should be performed. Compression duplex doppler should be performed where this is normal. If both tests are negative with persistent clinical suspicion of acute PTE, a ventilation–perfusion (V/Q) lung scan or a computed tomography pulmonary angiogram (CTPA) should be performed.
- Women should be advised that CTPA carries a higher risk of maternal breast cancer (lifetime risk increased by up to 13.6% on a background risk of 1/200) but V/Q scanning carries a slightly increased risk of childhood cancer compared with CTPA (1/280,000 versus less than 1/1,000,000)
- CTPA is available Monday to Friday 9-5 in our radiology department. A V/Q scan is only available in Southampton.

4.8 Treatment of proven VTE

- Women should receive a therapeutic dose of Clexane for the remainder of the pregnancy and for at least 6 weeks post partum or until at least 3 months total treatment has been given. In each case an individual management plan should be clearly documented in the woman's hand held notes.

4.9 Therapeutic dose of Clexane

Clexane should be given daily in two subcutaneous divided doses with dosage titrated against the woman's booking or most recent weight

Weight (Kg)	**< 50**	**50–69**	**70–89**	**> 90**
Dose	40mg bd	60mg bd	80mg bd	100mg bd

4.10 Management of life threatening VTE in pregnancy

- Pulmonary embolism should be suspected in all patients presenting with sudden onset of shortness of breath, chest pain, or cardiovascular collapse.
- Dial 2222 stating obstetric emergency and adult resuscitation team.
- Assess and ensure adequate airway, breathing and circulation
- A consultant obstetrician and anaesthetist should be present as well as the on-call medical team.
- Transfer to high dependency area and monitor blood pressure, pulse oximetry, and urine output.
- Send blood for full blood count, clotting, urea and electrolytes, liver function test and arterial blood gases
- Request ECG and chest X-Ray
- An urgent portable echocardiogram or CTPA within 1 hour of presentation should be arranged.
- In massive life-threatening PTE with haemodynamic compromise there is a case for considering thrombolytic therapy, as anticoagulant therapy will not reduce the obstruction of the pulmonary circulation. This should be given only after discussion between the consultant obstetrician, physician and anaesthetist
- If thrombolysis is not used, administer unfractionated heparin at a loading dose of 80 units/kg IV followed by a continuous intravenous infusion of 18 units/kg/hour
- If thrombolytic therapy has been given, an infusion of unfractionated heparin can be given but the loading dose should be omitted
- measure activated partial thromboplastin time (APTT) 4–6 hours after the loading dose, 6 hours after any dose change and then at least daily when in the therapeutic range. The therapeutic target APTT ratio 1.5–2.5 times the average laboratory control value.

4.11 Post natal review

- Women diagnosed with VTE during pregnancy should have an appointment booked for the haematolgy clinic in the postnatal period. Thrombophila tests should be reviewed and arrangements made to repeat them if necessary. Advice should be given on the need for thromboprophylaxis in any future pregnancy and at other times of increased risk.
- All women that have had a VTE during their pregnancy or the postnatal period will be given an appointment with the consultant haematologist within 6 weeks.
- The obstetric consultant will send a written referral and the appointment will be posted to the woman's home.

5 Implementation/training/awareness

- This is a review of a current document and it formalises current practice.
- Once ratified it will be available in all clinical areas within the Maternity Unit and on the intranet.
- All new, reviewed and ratified documents are notified to staff via the monthly maternity newsletter

6. Auditable Standards

What aspects of compliance with the document will be monitored	What will be reviewed to evidence this	How and how often will this be done	Detail sample size (if applicable)	Who will coordinate findings	Which group or report will receive findings
Appropriate completion of risk assessments in AN/PN notes	AN/PN notes	Yearly	10 sets	Audit Midwife	LW meeting
Appropriate action/s taken based on findings of risk assessments	AN/PN notes	Yearly	10 sets	Audit Midwife	LW meeting

7. Related Documents:

- Guideline for the management obesity in pregnancy

Patient Information:

RCOG Diagnosis and treatment of venous thrombosis in pregnancy and after birth - www.rcog.org.uk/en/patients/patient-leaflets/treatment-of-venous-thrombosis-in-pregnancy-and-after-birth

Trust Policies/Procedures:

8. References:

- **RCOG guideline** 28 Thromboembolic disease in pregnancy and the puerperium: acute management
- **RCOG guideline 37** Thromboprophylaxis during Pregnancy, Labour and after Vaginal Delivery

9 DISCLAIMER

It is the responsibility of staff to check the Trust intranet to ensure that the most recent version/issue of this document is being referenced.

DOCUMENT HISTORY					
Date of Issue	**Version No.**	**Next Review Date**	**Date Approved**	**Director Responsible for Change**	**Nature of Change**
Dec 2006	1.0	Dec 2007	Dec 2006		New Document Ratified at Maternity CSG
Oct 2009	2.0	Oct 2011	Oct 2009		Ratified at Maternity CSG
Sept 2010	3.0	Sept 2012	Sept 2010		Ratified at Maternity CSG
23rd April 2012	4.0	23rd April 2015	23rd April 2012		Amendments made to monitoring box to reflect CNST recommendations. Approved at Maternity CSG
25th Septemb er 2012	5.0	25th Septemb er 2015	25th September 2012		Amendments made to include new maternity notes.

					Ratified at Maternity CSG
March 2016	6.0	15th March 2019	15th March 2016	Clinical Director for SWCH	Reviewed, no changes
February 2017	7.0	February 2020	February 2017		Update following change to NICE Guidance
July 2019	SOP-v1	July 2022	July 2019	MCEG	Converted to a SOP
Sept 2019	1.1	Sept 2022	Sept 2019	MCEG	Risk Assessments modified