Western Cape Government

TBH Obstetrics & Gynaecology

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VENOUS THROMBOEMBOLISM (VTE) IN PREGNANCY AND THE PUERPERIUM

This protocol deals with:

A. VTE **prophylaxis** in women at high risk during pregnancy and the puerperium
B. Acute **treatment** for VTE in pregnancy and the puerperium
→This protocol does not apply to women with mechanical heart valves or other conditions requiring life-long anti-coagulation.

Background

- Pregnancy is a **hypercoagulable state**, with VTE risk increased **4–5 times** compared to non-pregnant women.
- VTE is a leading cause of **maternal morbidity and mortality**.
  - In the Saving Mother's report, more women died from embolic events than from ectopic pregnancies.
  - The Maternal Mortality Ratio for embolism was the same as for pregnancy-related sepsis (5/100 000).
- Risk persists until **6–8 weeks postpartum**

A. VTE Prophylaxis

Risk Assessment

Risk stratification can help identify those pregnant women at higher risk for thrombosis, and appropriate prophylaxis can be recommended. The highest risk is in a pregnant woman who had a previous episode of VTE before the index pregnancy, especially if it occurred during a previous pregnancy.

- Perform a risk assessment at:
  - **Booking visit**
  - **Hospital admission**
  - **Delivery**
  - **Immediately postpartum**

Indications for Low Molecular Weight Heparin (LMWH) Prophylaxis:

- A previous well-documented **history** of deep vein thrombosis, arterial thrombosis, or pulmonary embolus

  Prophylaxis: **During pregnancy** and **6 weeks postpartum**

High-Risk factors:

- Emergency Caesarean section
- BMI > 40 kg/m²
- Prolonged hospitalisation
- Intravenous drug use

Any ONE of these High-Risk factors present- Minimum 5 days prophylaxis postpartum

Intermediate Risk factors:

- Age > 35 years
- BMI 35–40 kg/m²
- Parity ≥ 3
- Smoking
- Elective Caesarean section
- Surgery in puerperium
- Gross varicose veins
- Systemic infection
- Immobility (e.g. paraplegia, long travel)
- Pre-eclampsia*
- Prolonged labour > 24 hours (excluding normal-mobility stage during early latent phase)
- PPH > 1L, or blood transfusion

Prophylaxis:

- **One factor**: Encourage hydration and mobilisation
- **Two or more**: prophylaxis for a **minimum of 5 days postpartum**

***For **pre-eclampsia with nephrotic-range proteinuria, individualised cases** may be prescribed a longer duration of VTE prophylaxis by the Special Care team. This falls outside of the scope of this general protocol, and needs to be motivated to the pharmacy.

Pharmacological Prophylaxis (Dose)
Low Molecular Weight Heparin (LMWH)
Enoxaparin SC:

- Weight <100 kg: 40 mg daily
- Weight ≥100 kg: 60 mg daily

Start **6–12 hours after delivery**

Notes:

- Avoid spinal/epidural anaesthesia within **12 hours** of LMWH
- Stop LMWH if **labour begins or vaginal bleeding occurs**
- Monitor for **skin reactions** at injection site
- Use the motivation form (attached) with a responsible consultant name, to accompany your script for enoxaparin (as it is an expensive drug). Your contact detail has to be on the form.

B. Acute VTE Treatment

In women with **confirmed pulmonary embolus** or **DVT**:

Enoxaparin SC: 1 mg/kg **every 12 hours**

- Continue for **6 weeks postpartum** and **minimum 3 months in total**
- Discontinue **24 hours before planned delivery**

Notes on **Warfarin** in the **treatment** of VTE:

- **Not recommended during pregnancy**
- Safe in **breastfeeding** (negligible amounts pass into breast milk)
- Can be initiated **5–7 days postpartum** if long-term anticoagulation (**beyond six weeks**) is needed; or if a woman is finding it difficult to inject herself with enoxaparin, but counsel the women that there is **a high risk of complications** (most importantly severe secondary PPH, that may require the administration of blood products) and that it takes on average **9 additional inpatient days** (but can be up to 30 days) to achieve a therapeutic INR in postpartum women. See alternative (DOAC) below:

Notes on Direct Oral Anticoagulant (DOAC) drugs in this setting

- Rivaroxaban is **not recommended** for use during **pregnancy** (lack of safety data)
- Currently, rivaroxaban is **not recommended** for use during **breast-feeding** (but several case reports and one thorough pharmacokinetic analysis consistently indicate that maternal doses of rivaroxaban of 15 to 30 mg daily produce low levels in milk that are considerably below doses (<2%) required for anticoagulation in infants).
- Data on the efficacy of rivaroxaban during the puerperium is limited to case reports (may have decreased efficacy).
- Rivaroxaban is cheaper than enoxaparin, and easier to use (oral vs injection)
- If you intend to switch from enoxaparin to an oral agent 6 weeks after delivery (due to the need for ongoing treatment; up to 3 months), consider switching to rivaroxaban instead of warfarin (**rivaroxaban 20 mg once daily to complete the treatment duration of 3 months**) as it does not require INR monitoring and has less complications than warfarin. If the woman is still breastfeeding during this stage, and prefer to use rivaroxaban, make good notes about your counselling in this regard.

If you need to change from enoxaparin to warfarin (e.g. women on **long-term anticoagulation with warfarin** before pregnancy, or requiring anticoagulation after 6 weeks post-delivery and **does not want to use rivaroxaban**):

- Initiation of warfarin will require continued anticoagulation with LMWH until the INR is within the therapeutic range
    - Start with Warfarin, oral, 5 mg daily (see table below).
    - INR should be done after 48 hours, then every 1 to 2 days until the INR is within the therapeutic range of 2-3
    - Adjust dose to keep INR within therapeutic range (see table)
    - Monitor INR at week 1, 2, and 4 (more frequent monitoring may be required if INR is out of therapeutic range).
    - All women of reproductive age should be on appropriate contraception

Warfarin initiation dosing protocol (week 1) with INR target: 2–3		
Day therapy	**INR Value**	**Total daily dose**
Day 1		5 mg daily (2.5 mg daily for high sensitivity)
2 to 3 days after initiation	< 1.5 1.5 – 1.9 2.0 – 2.5 > 2.5	5–7.5 mg daily 2.5–5 mg daily 2.5 mg daily Hold warfarin and recheck INR next day
2 to 3 days after last INR check	< 1.5 1.5 – 1.9 2.0 – 3.0 > 3.0	7.5–10 mg daily 5–10 mg daily 2.5–5 mg daily Hold warfarin and recheck INR in1–2 days

Frequency of INR monitoring after initiation of warfarin	
Check INR	
Every 2–3 days	Until INR within therapeutic range on 2 consecutive INR checks
Then every week	Until INR within therapeutic range on 2 consecutive INR checks
Then every 2 weeks	Until INR within therapeutic range on 2 consecutive INR checks
Then every 4 weeks	When dose is stable, check monthly

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COMPILED BY	GS Gebhardt
COMMITTEE RESPONSIBLE	GS Gebhardt, E Swart, L de Waard, T Hassim Protocol reviewed by Prof E Decloedt and dr R Van Rensburg of the Division of Clinical Pharmacology
DATE EFFECTIVE	15 September 2025 (this protocol replaces any earlier versions and checklists)
REVIEW DATE	15 September 2030
EVIDENCE (Available on request)	Based on the Standard Treatment Guidelines for SA, RCOG, ACOG, Cochrane, and NCCEMD reviews/ guidelines.

15 September 2025

Motivation for prophylactic Enoxaparin in Pregnancy- 2025

Please add this checklist to the prescription chart

Patient sticker

Enoxaparin dose

Weight	Dose	Tick appropriate box
Weight <100kg	40mg SC daily	
Weight ≥100kg	60mg SC daily	

	Indication	Tick appropriate box	Suggested course
A	Previous well-documented history of deep vein thrombosis, arterial thrombosis, or pulmonary embolus		Enoxaparin daily throughout pregnancy and up to 6 weeks post delivery
B	A patient with any ONE of the following HIGH RISK factors needs a minimum of 5 days postnatal enoxaparin (or longer duration if still admitted in hospital)	Any one:	Post partum prophylaxis only, for a minimum of 5 days (or longer duration if still admitted to hospital)*
	Emergency Caesarean section		
	BMI > 40 kg/m^2		
	Prolonged hospital stay		
	Intravenous drug user		
C	A patient with any TWO or more of the following INTERMEDIATE RISK factors needs a minimum of 5 days postnatal LMWH (or longer duration for prolonged hospital stay):	Two or more:	Post partum prophylaxis only, for a minimum of 5 days (or longer duration if still admitted to hospital)*
	>35 years of age		
	BMI 35-40 kg/m^2		
	Parity ≥ 3		
	Currently a smoker		
	Elective caesarean section		
	Any surgical procedure in the puerperium		
	Gross varicose veins		
	Current systemic infection		
	Pre-eclampsia		
	Prolonged labour > 24 hours (excluding normal mobility stage during early latent phase)		
	PPH > 1 liter; or requiring blood transfusion		
	Immobility e.g paraplegia		

*if postpartum stay in hospital is >5 days: tick here for extended prescription until discharge (consultant signature needed)

Responsible consultant name: _____

Signature, HPCSA number and contact detail of prescribing doctor:_____

For any other prophylactic or therapeutic indication not on this list, discuss with pharmacy first