Green-top Guideline No. 37a *Reducing the Risk of Venous Thromboembolism During Pregnancy and the Puerperium*

Position Statement

The Royal College of Obstetricians and Gynaecologists (RCOG) is currently undertaking a full update of the Green-top Guideline (GTG) No. 37a *Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium*. This update is being led by the 37a guideline developer team. Pending publication of the updated guideline, clinicians should follow the current GTG No. 37a, but with the amendments as set out below, which align with the NHS England Maternal Care Bundle (MCB). Clinicians should also follow the MCB recommendations relating to women in the first trimester of pregnancy and those who experience miscarriage or choose to end their pregnancy. While the update is in progress, it is suggested clinicians in Wales, Scotland and Northern Ireland also follow the below advice.

Women with a BMI of 50 kg/m^2 or more

Women with a booking BMI of 50 kg/m^2 or more should be offered low molecular weight heparin (LMWH) thromboprophylaxis during pregnancy and for 6 weeks postpartum, in line with the NHS England MCB.

LMWH dosing during pregnancy

Pending publication of the updated guideline:

- **Prior to the first midwife booking appointment:** clinicians should use the LMWH dosing recommendations set out in *Element 1: Venous thromboembolism* of the NHS MCB.
- **From booking onwards**: when risk assessing women, clinicians should refer to the amended *Risk assessment for venous thromboembolism* (see Appendix I), which reflects recommendations in the NHS MCB. Clinicians should also follow the revised weight-based dosing recommendations in Table 1 below, which replace those in the current edition of RCOG GTG No. 37a.

Table 1. Suggested thromboprophylactic doses for antenatal and postnatal LMWH

Weight	Enoxaparin	Dalteparin	Tinzaparin (75 u/kg/day)
< 100 kg	40 mg daily	5000 units daily	4500 units daily
100–129 kg	60 mg daily*	7500 units daily	7000 units daily*
130–169 kg	80 mg daily*	10 000 units daily	9000 units daily*
170+ kg	0.6 mg/kg/day*	75 u/kg/day	75 u/kg/day*

* May be given in two divided doses

Hyperemesis and other causes of prolonged immobility

The NHS MCB specifically highlights hyperemesis gravidarum* (HG) as a risk factor for venous thromboembolism (VTE) and recommends that women with HG be offered LMWH and receive it within 72 hours.

* Defined in the NHS MCB as '*a woman cannot drink without vomiting or struggles to stand up and walk due to symptoms*'.

The RCOG, including the current 37a guideline developer group, considers the recommendation to apply more broadly to any transient risk factor (see Appendix I) resulting in hospitalisation and prolonged immobility.[1–4] Women admitted to hospital during pregnancy because of HG or another transient condition associated with immobility should receive LMWH thromboprophylaxis for the duration of the increased risk. Treatment should be continued until the transient risk factor has resolved and for a further week thereafter.

References

1. Knight M, UKOSS. Antenatal pulmonary embolism: risk factors, management and outcomes. *BJOG* 2008;115(4):453–61.
2. Ge YZ, Zhang C, Cai YQ, Huang HF. Application of the RCOG Risk Assessment Model for Evaluating Postpartum Venous Thromboembolism in Chinese Women: A Case-Control Study. *Med Sci Monit* 2021;27:e929904.
3. Jacobsen AF, Skjeldestad FE, Sandset PM. Ante- and postnatal risk factors of venous thrombosis: a hospital-based case-control study. *J Thromb Haemost* 2008;6(6):905–12.
4. Alsheef MA, Alabbad AM, Albassam RA, et al. Predictors of pregnancy-associated venous thromboembolism: A case-control study. *Front Cardiovasc Med* 2022;9:920089.

Appendix I: Risk assessment for venous thromboembolism

- If total score ≥ 4 antenatally consider thromboprophylaxis from the first trimester.
- If total score 3 antenatally consider thromboprophylaxis from 28 weeks of gestation.
- If total score ≥ 2 postnatally consider thromboprophylaxis for at least 10 days
- If admitted to hospital antenatally, consider thromboprophylaxis
- If readmitted to hospital within the puerperium, consider thromboprophylaxis.

For patients with an identified bleeding risk, the balance of risks of bleeding and thrombosis should be discussed in consultation with a haematologist with expertise in thrombosis and bleeding in pregnancy.

Risk factors for VTE		
Pre-existing risk factors	**Tick**	**Score**
Previous VTE (except a single event related to major surgery)	☐	4
Previous VTE provoked by major surgery	☐	3
Known high-risk thrombophilia	☐	3
Medical comorbidities, e.g. cancer, heart failure; active systemic lupus erythematosus, inflammatory polyarthropathy or inflammatory bowel disease; nephrotic syndrome; type 1 diabetes mellitus with nephropathy; sickle cell disease; current intravenous drug user	☐	3
Family history of unprovoked or estrogen-related VTE in first-degree relative	☐	1
Known low risk thrombophilia (no VTE)	☐	1*
Age (> 35 years)	☐	1
BMI 30–39 kg/m^{2†}	☐	1
BMI 40–49 kg/m^{2†}	☐	2
BMI ≥ 50 kg/m^{2†}	☐	4
Parity ≥ 3	☐	1
Smoker	☐	1
Gross varicose veins	☐	1
Obstetric risk factors		
Pre-eclampsia in current pregnancy	☐	1
Assisted reproduction/In vitro fertilisation (antenatal only)	☐	1
Multiple pregnancy	☐	1
Caesarean section in labour	☐	2
Elective caesarean birth	☐	1
Mid-cavity or rotational operative birth	☐	1
Prolonged labour (> 24 hours)	☐	1

Postpartum haemorrhage (> 1 litre or transfusion)		1
Preterm birth < 37^{+0} weeks of gestation in current pregnancy		1
Stillbirth in current pregnancy		1
Transient risk factors		
Any surgical procedure in pregnancy or puerperium, except immediate repair of the perineum, e.g. appendicectomy, postpartum sterilisation		4‡
Hyperemesis		3
Ovarian hyperstimulation syndrome		4‡
Current systemic infection (requiring intravenous antibiotics or admission to hospital)		4‡
Immobility, dehydration		4‡
TOTAL		

* If the known low-risk thrombophilia is in a woman with a family history of VTE in a first-degree relative postpartum thromboprophylaxis should be continued for 6 weeks.

† Fatokun TB, Swartz SE, Ebeid A, Cordes SA, Gimovsky AC, Sparks AD, et al. Venous thromboembolism risk factors in women with obesity who undergo cesarean delivery. *Clin Appl Throm/Hemost* 2024;30.
Butwick AJ, Bentley J, Leonard SA, Carmichael SL, El-Sayed YY, Stephansson O, et al. Prepregnancy maternal body mass index and venous thromboembolism: a population-based cohort study. *BJOG* 2019;126(5):581–588.

‡ LMWH should be started and continued as long as the risk factor persists and for 7 days thereafter.