Thromboembolic Disease in Pregnancy

**No Prior History of VTE**

- **Low Risk** (see below)
  - Clinical Vigilance
    - No Anticoagulation

- **Intermediate Risk** (see below)
  - Clinical Vigilance
    - No Anticoagulation
  - Prophylactic Anticoagulation 1,2

- **High Risk** (see below)
  - Clinical Vigilance
    - No Anticoagulation
  - Prophylactic Anticoagulation for 6 weeks 3

**History of 1 Prior VTE** (Not currently on Anticoagulation)

- Associated with Nonrecurrent/transient risk factor (Not pregnancy or estrogen-related)
  - Clinical Vigilance
    - No Anticoagulation

- Associated with Pregnancy, Estrogen-related-or-Idiopathic/Unprovoked
  - Clinical Vigilance
    - Prophylactic or Intermediate-Dose Anticoagulation 1,2

**Current VTE -or- On Long-Term Anticoagulation -or- ≥ 2 VTEs**

- Therapeutic-Dose Anticoagulation 1,2

**Antepartum**

- Low Risk 1,2
  - No Family History
    - (First degree relative w/ VTE < 50yo)
  - “Mild Thrombophilia”:
    - Factor V Leiden Heterozygote - or - Prothrombin G20210A Heterozygote

- Intermediate Risk 1,2
  - No Family History
    - (First degree relative w/ VTE < 50yo)
  - “Strong Thrombophilia”:
    - Factor V Leiden Homozygote
    - Prothrombin G20210A Homozygote
    - Protein S Deficiency
    - Protein C Deficiency
    - Antithrombin Deficiency
    - Double Heterozygote for Factor V Leiden & Prothrombin G20210A
    - Antiphospholipid Antibody Syndrome

- High Risk 1,2
  - Positive Family History
    - (First degree relative w/ VTE < 50yo)
  - “Strong Thrombophilia”:
    - Factor V Leiden Homozygote
    - Prothrombin G20210A Homozygote
    - Protein S Deficiency
    - Antithrombin Deficiency
    - Double Heterozygote for Factor V Leiden & Prothrombin G20210A
    - Antiphospholipid Antibody Syndrome

**Other Risk Factors to consider postpartum:**

- Obesity (BMI >30kg/m²)
- Prolonged immobility (>24 hr bed rest 2wk postpartum)
- Cesarean Delivery
- Peripartum hemorrhage ≥1,000mL
- Pregnancy Complication
  - (Ex: Preeclampsia, Multiples, Fetal Growth Restriction)
- Postpartum infection
- Blood Transfusion
- Medical Conditions
  - (Ex: SLE, Sickle cell, HIV, DM, IBD)
- Smoking >10 cig/day
- Other Major Thrombotic Risk Factor

*Screening for thrombophilia is controversial. It is useful only when results will affect management decisions and is not useful in situations where treatment is indicated for other risk factors. Therefore, we do not recommend routine thrombophilia screening in patients with a prior VTE. We recommend thromboembolism management during pregnancy based on personal risk factors and family history.*
**ANTICOAGULATION REGIMENS**

### Low Molecular Weight Heparin (LMWH)-Recommended

**Prophylactic**a
- Enoxaparin 40 mg sq once daily
- Dalteparin 5,000 units sq once daily

**Intermediate**b
- Enoxaparin 40mg sq q12hrs
- Dalteparin 5,000 sq units q12rs

**Therapeutic**c
- Enoxaparin 1 mg/kg sq q12hrs
- Dalteparin 200 units/kg sq once daily -or- 100 units/kg sq q12hrs

### Unfractionated Heparin (UFH)d,e

**Prophylactic**
- 1st trimester: 5,000-7,500 units sq q12hrs
- 2nd trimester: 7,500-10,000 units sq q12hrs
- 3rd trimester: 10,000 units sq q12hrs

**Intermediate**
- 5,000-10,000 units sq q12hrs (Adjust to target AntiXa 0.1-0.3 units/mL)

**Therapeutic**
- 216u/kg q12hrs (Adjust to target aPTT of 1.5-2.5, 6hrs after injection)

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**a:** With prophylactic dosing, do not need to monitor AntiXa or aPTT levels, unless clinically suspect levels outside of recommended range.\(^1\,\(^2\) (Goal: 0.2-0.4 units/mL for prophylactic dosing)\(^1\,\(^3\)

**b:** At extremes of body weight, dose modification may be required.\(^1\)

**c:** Consider checking Anti-Xa Levels 4-6hrs after injection (Goal 0.6 - 1.0 units/mL for q12hr therapeutic dosing)\(^1\,\(^3\)

**d:** Consider evaluation for Heparin-induced Thrombocytopenia (HIT): Check CBC on days 3, 7, & 14 after starting UFH

**e:** Consider calcium supplementation\(^2\)

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**PERI-DELIVERY**

- Change to UFH at 36 weeks
  (or earlier if anticipate preterm delivery)

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**INTRAPARTUM**

- Hold Anticoagulation
- For patients on LMWH/UFH:
  * Last therapeutic dose should be \(\geq\)24hrs before regional anesthesia
  * Last prophylactic dose should be \(\geq\)12hrs before regional anesthesia
- For patients on UFH, regional anesthesia when PTT normal
- Sequential compression devices

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**POSTPARTUM**

- If restarting LMWH/UFH\(^1\):
  * Prophylactic: 6 hours after vaginal delivery
  * 12 hours after cesarean delivery
    (Must be \(\geq\) 2 hours after epidural removal )
  * Therapeutic: 12 hours after vaginal/cesarean delivery
    (Must be \(\geq\) 12 hours after epidural removal)
- If starting Coumadin:
  * First Dose pm after delivery
  * Bridge with LMWH/UFH for 5 days and until INR 2-3 for 2 days.
  * Breast feeding permitted
- Sequential compression devices
References:


“For pregnant patients, we suggest LMWH for the prevention and treatment of VTE, instead of UFH (Grade 1B).”


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These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur during pregnancy. They should not be interpreted as a standard of care, but instead represent guidelines for management. Variation in practices should take into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities.

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