A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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<thead>
<tr>
<th>Version Number:</th>
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<td>Does this version include changes to clinical advice:</td>
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<td>12\textsuperscript{th} September 2017</td>
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<td>Date of Next Review:</td>
<td>1\textsuperscript{st} December 2021</td>
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<tr>
<td>Lead Author:</td>
<td>Gillian Burdge</td>
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<td>Approval Group:</td>
<td>Obstetrics Clinical Governance Group</td>
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**Important Note:**

The Intranet version of this document is the only version that is maintained. Any printed copies should therefore be viewed as ‘Uncontrolled’ and as such, may not necessarily contain the latest updates and amendments.
Greater Glasgow and Clyde Obstetric Guidelines

Thromboprophylaxis during Pregnancy and the Puerperium
A Guide to Risk Assessment & Management

Aim

The aim of this guideline is to provide information on risk assessment and management in the prevention of venous thromboembolism (VTE) during pregnancy and the puerperium.

Staff should also be aware of the additional GG+C guideline - Thromboembolic Disease in Pregnancy & Puerperium – Acute Management

Introduction and Background

- Venous thromboembolism (VTE) remains a major cause of direct maternal death in the UK (MBRRACE-UK 2015). Ongoing risk-assessment of all women from early pregnancy into the puerperium is an essential part of routine care, leading to timely identification and treatment of women at risk.


Risk Assessment

Risk assessment for thromboprophylaxis is ongoing throughout pregnancy and should take place routinely during key phases in the woman’s maternity care journey.

- At Booking
- At 28 weeks
- During any antenatal in-patient admission
- Post-birth in the labour ward setting
- Prior to postnatal discharge
- During any postnatal readmission
## Risk factors for VTE in Pregnancy & the Puerperium

**Risk factors for VTE in pregnancy and the puerperium (RCOG GTG 37a, 2015):**

### Pre-existing

- Previous VTE
- Thrombophilia
  - Heritable
    - Antithrombin deficiency
    - Protein C deficiency
    - Protein S deficiency
    - Factor V Leiden
    - Prothrombin gene mutation
  - Acquired
    - Antiphospholipid antibodies
    - Persistent lupus anticoagulant and/or moderate/high titre anticardiolipin antibodies and/or $\beta_2$-glycoprotein 1 antibodies.

- Medical conditions e.g. cancer; heart failure; active SLE, inflammatory polyarthritis or inflammatory bowel disease; nephrotic syndrome; type 1 diabetes mellitus with nephropathy; sickle cell disease.
- Current intravenous drug user
- Age > 35 years
- Obesity (BMI > 30 kg/m²) either pre pregnancy or in early pregnancy
- Smoking
- Gross varicose veins (symptomatic or above knee with associated phlebitis, oedema/skin changes)
- Paraplegia

### Obstetric risk factors

- Multiple pregnancy
- Current pre-eclampsia
- Caesarean section
- Prolonged labour (> 24 hrs)
- Mid-cavity or rotational operative delivery
- Stillbirth
- Preterm birth
- Post partum haemorrhage (> 1 litre/ requiring blood transfusion)

### New onset/ transient

- Any procedure in pregnancy or puerperium except immediate repair of the perineum, e.g. appendicectomy, post partum sterilization
- Bone fracture
- Hyperemesis
- Ovarian hyperstimulation syndrome (first trimester only)
  - Assisted reproductive technology (ART), in vitro fertilization (IVF)
- Admission or immobility (≥ 3 days bed rest)
  - e.g. pelvic girdle pain restricting mobility
- Current systemic infection (requiring intravenous antibiotics or admission to hospital)
  - e.g. pneumonia, pyelonephritis, post partum wound infection
- Long distance travel (>4hrs)
Assessment Tools

Following comprehensive history-taking the Midwife/Doctor will complete and document their risk assessment findings within the woman’s Maternity Summary Record and SWHMR as applicable. Supporting tools include:

- GG+C Antenatal/Postnatal Obstetric risk assessment and management Guide— (Poster)
- GG+C Antenatal and Postnatal Obstetric risk assessment and management forms— (appendix 1 + 2)
- The Thrombosis risk assessment box within the antenatal portion of the SWHMR
- The In-patient Medicine Prescription Form (drug kardex)

Management Plan

If the woman is identified as requiring thromboprophylaxis it is essential that a management plan is made by the Doctor and documented within the hospital based maternal Summary Record with a summary detailed in the maternal hand held record. Antenatal thromboprophylaxis should begin as early in pregnancy as achievable.

- Any clinician who is uncertain about the need for thromboprophylaxis or the ongoing management plan of patients must seek assistance from a colleague with an interest in medical disorders in pregnancy.
- Drug contraindications must be considered.
- Midwives can assess for and administer thromboprophylaxis. Prescribing thromboprophylaxis is an obstetric/medical remit.
- The thromboprophylaxis reassessment box within the Medicine Prescription Form should be completed at least every 48 hours.
- Women receiving antenatal thromboprophylaxis should be advised that if they experience any vaginal bleeding or once labour begins they should not inject any further LMWH until reviewed by an obstetrician and an ongoing plan of care documented.
- Breast-feeding is not contraindicated during post-natal thromboprophylaxis management

Thromboprophylaxis during labour and delivery, including the use of regional anaesthesia and analgesia

Thromboprophylaxis during labour and delivery

- Women receiving prophylactic or therapeutic doses of LMWH during the antenatal period should be reviewed by a Senior Obstetrician before term (37+0 weeks) and a plan for labour/birth documented.
- It is important to discuss the implications of treatment with LMWH for regional anaesthesia and analgesia with the women before labour or caesarean section – the obstetrician (and/or obstetric anaesthetist) should inform all women taking LMWH about regional anaesthesia and labour. All women should be given the patient information leaflet – ‘Information for pain relief during labour or delivery for pregnant patients on blood thinning medications’ (Appendix 2)
Regional anaesthesia or analgesia

- This may only be considered following discussion with a senior anaesthetist
- An individual management plan should be documented in the patient’s notes

To minimise or avoid the risk of epidural haematoma

- Regional techniques should not be used until at least 12 hours after the previous prophylactic dose of LMWH
- When a woman presents while on a therapeutic regimen of LWMH regional techniques should not be employed for at least 24 hours after the last dose of LMWH.
- LMWH should not be given for 4 hours after use of spinal anaesthesia or after the epidural catheter has been removed; the cannula should not be removed within 12 hours of the most recent injection.

Postnatal Risk Assessment

To be completed for every woman by the Midwife/Doctor:

- immediately following delivery prior to transfer to P/N ward
- on postnatal readmission

Completed postnatal risk assessment form should be filed in the Maternity summary record and a brief summary written in the maternal post-natal record.

Prescription if required should be written in the patient’s Medicine Prescribing Form (drug kardex) prior to transfer to the ward.

Thromboprophylaxis – ongoing management

Early mobilisation and avoidance of dehydration is recommended for all postnatal women

For women at high risk of postpartum VTE the recommended duration of thromboprophylaxis is 6 weeks.

For women with intermediate risk the recommended duration of thromboprophylaxis is 10 days.

LMWH dosage is graduated based on the woman’s most recent weight.

Use of Anti-Embolic Stockings (AES):

The evidence supporting the use of graduated elastic compression stockings is varied. Pregnant women considered to be at an increased risk of VTE and have a contraindication to LMWH, should be advised to wear AES when immobilised/hospitalised during the antenatal period. (RCOG 2015, SIGN 2010)
Accurate fitting and careful instruction in the correct application of the hosiery is essential to avoid discomfort and assist rather than prevent venous return.

For women who are risk of VTE postnatally and have a contraindication to LMWH, AES should be considered. Compliance factors should be evaluated and the option of below the knee stockings explored.

**Post-natal – self administration LMWH**

Women who require continuing with sub-cutaneous thromboprophylaxis injection on discharge from the ward setting should be encouraged and supported to self-administer in the community setting.

The woman will be shown the correct method by the ward midwife and have the opportunity to self-administer under supervision.

**Authors**
Gillian Burdge, Andrew Thomson, Catherine Bagot

**Implementation / Review Dates**
Implementation 06/09/2017       Review 01/12/2021

**Title**
Thromboprophylaxis during Pregnancy and the Puerperium
A Guide to Risk assessment & Management

**Approval**
Dr Catrina Bain on behalf of Obstetric Governance Group 8th June 2017 (pending supplies)
Antenatal Assessment and Management

All pregnant women admitted antenatally should have prophylactic doses of LMWH unless there is a concern re suspected labour, induction of labour or bleeding.

NHS GG&C Obstetric Guideline - Thromboprophylaxis risk assessment and management

### High risk
Requires antenatal prophylaxis with LMWH

High risk: Refer immediately to thrombosis in pregnancy expert/team

### Intermediate risk
Consider antenatal prophylaxis with LMWH (antiembolic stockings should be used when LMWH is contraindicated e.g. women at risk of antepartum haemorrhage).

Intermediate Risk + ≥ 1 other risk
Prophylaxis from confirmation of intrauterine pregnancy

### Low Risk

#### ≥ 4 Risk factors
Antenatal prophylaxis with LMWH from confirmation of intrauterine pregnancy

#### 3 Risk factors
Antenatal prophylaxis with LMWH from 28+0 weeks

Refer all women with intermediate or any of the above risk factors, immediately after pregnancy has been confirmed by gestational ultra sound to named consultant.

#### Low Risk
<3 risk factors
Mobilisation and avoidance of dehydration

LMWH of choice in GGC is Enoxaparin.

*Drug calculation based on most recent weight.

- Weight <50kg = 20mg Enoxaparin daily.
- Weight 50-90.9kg = 40mg Enoxaparin daily.
- Weight 91-130.9kg = 60mg Enoxaparin daily.
- Weight 131-170kg = 80mg Enoxaparin daily.
- Weight >170kg = 0.6mg/kg/day Enoxaparin daily.

Risk assessment and management of Thromboprophylaxis is an ongoing process throughout pregnancy and the postnatal period.
Obesity (Most recent BMI ≥ 30 kg/m²).
Age > 35yrs.
Parity ≥ 3 (excluding the current pregnancy).
Current smoker.
Family history of VTE.
Low risk thrombophilia (see above for definition).
Gross varicose veins.
Current systemic infection (e.g. on iv antibiotics).
Current pre eclampsia on treatment.
Immobility e.g. paraplegia, bedbound ≥3days, pelvic girdle pain.
Multiple pregnancy.
Preterm delivery this pregnancy (<37wks).
Mid cavity rotational or operative delivery.
Prolonged labour (>24hrs).
PPH >1 litre blood loss or blood transfusion.
Stillbirth this pregnancy.

Caesarean section
Obesity (Most recent BMI ≥ 40 kg/m²).
Readmission or prolonged admission (≥ 3days) in the puerperium.
Any surgical procedure in the puerperium except immediate repair of perineum.
Medical co morbidities e.g. cancer, heart failure, active SLE, IBD or inflammatory polyarthropathy, nephrotic syndrome, type 1 DM with nephropathy, sickle cell disease, current intravenous drug use.

Postnatal Risk Assessment
Assessed by:____________________________Signature ______________________
Designation __________________________Date____________________

Note *Risk assessment and management of Thromboprophylaxis is an ongoing process throughout pregnancy and the postnatal period.

High risk
Requires prophylactic LMWH for at least 6 weeks postnatal.

Intermediate risk
At least 10 days postnatal prophylactic LMWH

Low Risk
<2 risk factors
Mobilisation and avoidance of dehydration

LMWH of choice in GGC is Enoxaparin.
*Drug calculation based on most recent weight.
Weight <50kg = 20mg Enoxaparin daily.
Weight 50-90.9kg = 40mg Enoxaparin daily.
Weight 91-130.9kg = 60mg Enoxaparin daily.
Weight 131-170kg = 80mg Enoxaparin daily.
Weight >170kg = 0.6mg/kg/day Enoxaparin daily.
Patient Assessment and Consent for self administration of Sub-Cutaneous Enoxaparin (Clexane) in Hospital and in the Home Setting.

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Yes</th>
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<tbody>
<tr>
<td>1.</td>
<td>Has the patient read and understood the information explaining self administration?</td>
<td>☐</td>
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</tr>
<tr>
<td>2.</td>
<td>Can they understand the name and the purpose of the medication, the dosage and any possible side-effects?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3.</td>
<td>Have they any difficulties with opening the medicine package or reading the label?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4.</td>
<td>Are they aware of how to safely store and dispose of the medicine container and syringe after use?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5.</td>
<td>Has the patient safely self-administered under direct supervision of a midwife or doctor?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6.</td>
<td>Are there any other factors to exclude participation in self-administration?</td>
<td>☐</td>
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</table>

If self-administration is deemed inappropriate the reason should be documented in the case record.

**Patient Assessed by:** __________________________  **Print name:** __________________________

**Date:** __________________________  **Designation:** __________________________

I have understood the information on self-administration of clexane. I have had the opportunity to self-administer and I am willing and able to self-administer clexane by injection at home.

**Patient’s Signature:** __________________________  **Print name:** __________________________

**Date:** __________________________

**Witnessed by:** __________________________  **Print name:** __________________________

**Date:** __________________________

Please file completed form in base case notes or record – document consent in maternal hand held record.
Guidance on how to take your enoxaparin injections at home

www.nhsggc.org.uk/enoxaparininjections
Your Midwife will already have shown you how to inject yourself with enoxaparin. One of the common trade names for enoxaparin is Clexane.

This sheet gives you some simple instructions about injecting enoxaparin at home. Keep this leaflet as a handy reminder. This guidance does not replace the advice of your midwife or doctor. If you have any questions, or are unsure about how to inject enoxaparin, your midwife or doctor will be able to help. They will also tell you how long your treatment will last.

Why do I need enoxaparin?
Your injection helps to reduce the risk of blood clots and is known as an anticoagulant. Research has shown us that some women in pregnancy and for a period after giving birth are at a higher risk of developing blood clots. This includes women who have had recent surgery, have varicose veins, are overweight, have a specific medical condition or had a blood clot in the past.

How should I take enoxaparin?
You must take enoxaparin as an injection preferably at the same time everyday. Remember to swap injection sites as your midwife has shown you. The injections are for your use only.

When should I stop taking enoxaparin?
Your doctor or midwife will advise you on how long your treatment is for. They will discuss the timing of your medication if you are having an induction of labour or a planned caesarean section.
However you must stop taking enoxaparin
• If you experience any antenatal vaginal bleeding
• If you think you are in labour
Under these circumstances, do not take your next dose of enoxaparin and contact the maternity assessment unit for advice.
Storage
Always keep your syringes at room temperature in a secure place out of direct sunlight or moisture and safely away from children and others. You should keep your safety bin (sometimes known as a ‘sharps box’) out of the reach of children and in a secure place.

Step by step Guide for injecting enoxaparin.
1. Wash your hands with soap and water, dry thoroughly.
2. Get yourself into a comfortable position so that you can see the part of your tummy where you are going to inject. Before you begin place the sharps box and syringe in an easy to reach position.
3. Chose an area 4 fingers wide either to the left or the right of your tummy button towards your sides and always away from any wounds or scars.
4. Carefully remove the protective cap from the end of the syringe, taking care not to bend the needle.
5. Hold the syringe like you have been shown, in the hand that you normally write with. Pinch a fold of the skin where you are going to inject between your thumb and index finger of your other hand.
6. Insert the whole length of the needle into the fold of skin, keeping hold of the skin between your thumb and index finger. Make sure you insert the needle straight and not at an angle.
7. Press down gently but firmly on the plunger until it stops and the syringe is empty.
8. Gently pull the needle out taking care to keep it straight. You can now let go of the fold of skin. Please don’t rub the site as this can cause bruising.
9. Drop the syringe and needle immediately into the sharps box. Do not try to re-cover the needle. Some syringe types have a protective shield which will automatically cover the needle. You must treat these like any other syringe and needle and therefore immediately drop these into the sharps box.
Disposal

It is very important that you do not put your syringe and needle into the household rubbish. Never leave syringes lying around the house. When your sharps box is full your health care professional will tell you how to dispose of it.

Side Effects

As with all medications enoxaparin can cause side effects or an allergic reaction in some people. Please remember if you notice any unusual bleeding, bruising or skin irritation from any area of your body to contact your health care professional as soon as possible.

Pain-killers

It is important that you do not take any pain killers containing aspirin or non steroidal such as ibuprofen unless prescribed by a doctor who is aware you are taking enoxaparin. These can increase the likelihood of bleeding. We will tell you what pain relief you can take before you leave the hospital.

Remember – if you are concerned about any aspect of using enoxaparin please contact your midwife or GP who will be pleased to advise you.

Review Date: April 2019
Preventing Blood Clots in Pregnancy and After Birth

What is this information for?
To raise awareness of Venous Thrombo-Embolism (blood clots) for women who are pregnant and up to 6 weeks after giving birth.

What is Venous Thrombo-Embolism (VTE)
VTE is a general name for a group of conditions that includes:

1. Deep Vein Thrombosis (DVT) - a thrombus (blood clot) that can form in a deep vein of the body, usually in the leg or pelvic area. This can cause the vein to become blocked.
2. Pulmonary Embolism (PE) - when part of the blood clot from the DVT breaks away and travels to the lungs.

What are the signs and symptoms of a Deep Vein Thrombosis (DVT)?
- Pain and tenderness in the calf, thigh or groin.
- Swelling in the calf or leg.
- A sensation of heat and sometimes skin discolouration. This usually affects the calf but sometimes it can affect the whole leg.
- Unexplained limping while walking.

What are the signs and symptoms of a Pulmonary Embolism (PE)?
- Sudden shortness of breath which continues even while resting
- Chest pain which becomes worse when breathing in
- Coughing up blood
- Collapse

Why do blood clots form in the veins?
Blood normally flows quickly through the veins, helped along by movement of the muscles which squeeze the veins, and it does not usually clot. Occasionally blood clots occur for no clear reason. However, there are certain circumstances which increase the risk of having a blood clot (please see below).

What makes you more at risk of developing a blood clot?

Pregnancy
Pregnant women are ten times more likely to develop a blood clot; this is due to changes in your body during pregnancy. Blood clots can occur at any stage of your pregnancy and for six weeks after you give birth.

Immobility
Lack of mobility causes the flow of blood in the veins to slow, leading to an increased likelihood of clotting.

Please turn over
**Family History**

Some inherited conditions, which cause blood to clot more easily, can lead to an increased risk of developing a blood clot.

**Obesity**

Being significantly overweight increases your chances of developing a blood clot.

**Long Distance Travel**

Long journeys by plane, train, or car cause a minor increase in the risk of you having a blood clot, due to your limited mobility.

**How can I reduce the risk of a blood clot?**

- Keep as mobile as possible
- Keep a healthy weight
- Drink plenty of fluids to keep hydrated
- Change position regularly when sitting or lying in bed
- Follow healthcare staff’s advice

**Risk Assessments**

Your midwife will carry out a risk assessment at your first antenatal booking and may update this if your situation changes during your pregnancy. If you are admitted into hospital, you will have another risk assessment. You will also have another risk assessment after you have had your baby.

**Treatment to prevent blood clots**

- **Injections**
  
  If you are found to be at risk of blood clots we may prescribe an injection of low molecular weight heparin (LMWH) to “thin your blood”. Usually you inject this once a day into the skin on your abdomen. Your midwife will show you (or a family member) how to give the injections. These injections are safe for your baby and breastfeeding.

- **Anti-Embolism Stockings**
  
  These are a type of compression stocking designed to prevent a blood clot. Your midwife may advise you to wear these to improve the circulation of blood within your veins.

**If you have any of the symptoms described or are worried, please contact your Maternity Assessment Unit.**

References:

RCOG, Green Top Guidelines No. 37a (www.rcog.org.uk/guidelines);
RCOG, Information for you, Treatment of venous thrombosis in pregnancy and after birth.

Review Date: June 2019