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Approval Process

	Name	Title	Institution	Date	Signature
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Venous Thromboembolism Risk Assessment and Thromboprophylaxis

Department of Woman and Child Health

Directorate General of Primary Health Care

Ministry of Health

Sultanate of Oman

[10/12/2021]

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Abbreviations

ART	Assisted reproductive technology
BMI	Body mass index
DGMS	Directorate general of medical supplies
DGPHC	Directorate general of primary health care
DVT	Deep vein thrombosis
DWCH	Department of woman and child health
GCS	Graduated compression stockings
GP	General practitioner
IBD	Inflammatory bowel disease
IPC	Intermittent pneumatic compressions
IVDU	Intravenous drug user
IVF	In vitro fertilisation
LMWH	Low molecular weight heparin
MOH	Ministry of health
OHSS	Ovarian hyperstimulation syndrome
PE	Pulmonary embolism
SCD	Sickle cell disease
SLE	Systemic lupus erythematosus
VTE	Venous thromboembolism

CHAPTER ONE

1.1 Introduction

Venous thromboembolism (VTE): is a collective term that describes deep vein thrombosis (DVT) and pulmonary embolism (PE). Pregnant women have four to five-fold increased risk of thromboembolism as compared to non-pregnant women. The risk for VTE increases with gestational age, reaching a maximum just after delivery.

Thromboprophylaxis (thrombosis prevention): is medical treatment to prevent the development of thrombosis in women considered at risk for developing thrombosis.

Pulmonary embolism (PE) is one of the leading causes of maternal deaths. In Oman, between 2008 and 2017 the total maternal deaths were 135 out of them 16 were due to thromboembolism. Eleven cases occurred during the postnatal period and five were during the antenatal period. Also, based on maternal near-miss review between 2016 and 2017, five cases suffered pulmonary embolism.

The mortality and morbidity associated with venous thromboembolism (VTE) in obstetric patients can be reduced by up to two thirds by taking appropriate measures in time.

1.2 Purpose

This guideline is to provide information, based on clinical evidence and recommendations regarding prevention of venous thromboembolism (VTE) during pregnancy and postpartum, in order to standardize the care given to women at primary and secondary/ tertiary care level.

1.2.1 The purpose of this guideline is to be:

1.2.1.1 A guide for VTE risk assessment during pregnancy, childbirth and postnatal.

1.2.1.2 A guide for Thromboprophylaxis management of women at risk of thromboembolism during pregnancy, childbirth and postnatal.

1.2.1.3 As references for doctors, nurses and pharmacists to follow women who requires thromboprophylaxis during pregnancy, childbirth and postnatal.

1.2.2 The expected outcome of this guideline are:

1.2.1.4 Health care providers able to define VTE.

1.2.1.5 Health care providers able to identify mothers at risk of VTE.

1.2.1.6 Health care providers know how to use “risk factors for venous thromboembolism and risk assessment scoring during pregnancy, childbirth and postnatal”.

1.2.1.7 Health care providers know how to manage mothers at high risk for VTE.

1.3 Scope

This guideline applied to all doctors, midwives / nurses, pharmacists and assistant pharmacists provide antenatal and post natal care at primary, secondary and tertiary health care institutions (government and private).

1.4 Structure

1.4.1 Chapter one:

Contains introduction, purpose of guideline and expected out come

1.4.2 Chapter two:

Contains explanations of the risk factors for VTE, risk assessment using "risk assessment scoring" referral to obstetrician and thromboprophylaxis according to risk assessment.

1.4.3 Chapter three:

Describes the role and responsibilities of doctors, nurses and pharmacist at primary, secondary / tertiary health care level in prevention of thromboembolism during pregnancy and childbirth.

1.4.4 Chapter four:

Contains the annex and references of the guidelines

CHAPTER TWO

2.1 Risk factors for Venous thromboembolism:

It is recommended that any pregnant woman should be assessed using VTE risk factors. The following should be considered:

2.1.1 The strongest personal risk factor for VTE in pregnancy is a history of VTE. Many antenatal VTE occur in the first trimester and therefore prophylaxis for women with previous VTE should begin early in pregnancy.

2.1.2 Risks of recurrent VTE appear higher for those with a family history and deficiencies of the naturally occurring anticoagulants, particularly type 1 antithrombin deficiency.

2.1.3 Obesity is recognized as a major risk factor for the development of VTE in pregnancy and the puerperium

2.1.4 Personal history of Thrombophilia. Family history of VTE increase the risk for developing VTE.

2.1.5 Caesarean section is a significant risk factor and women who have an emergency caesarean section are at a greater risk as compared to those who have an elective caesarean section. Women who have vaginal delivery are also at risk of thromboembolism.

2.1.6 Obstetric risk factors: pre-eclampsia, ART/IVF, multiple pregnancy, prolonged labour >24 hour, PPH >1 litre, preterm < 37 weeks birth, stillbirth.

2.1.7 Other risk factors include: Medical co-morbidities e.g. cancer, heart failure, active SLE, inflammatory Poly arthropathy or inflammatory bowel disease, nephrotic syndrome, Type I diabetes with nephropathy, sickle cell disease, current intravenous drug user, woman age >35 years, parity ≥ 3, smoking, immobility e.g. Paraplegia and gross varicose vein

2.2 Risk Assessment for Venous Thromboembolism in pregnancy and puerperium

2.2.1 All women should undergo documented assessment of risk factors for VTE in antenatal and postpartum. A formal VTE risk assessment with numerical scoring is recommended (Table 1).

2.2.2 Risk assessment should be done at:

- Pre-pregnancy,
- Early pregnancy at booking,
- At 28th weeks of pregnancy,
- And intrapartum or within 6 hours after birth,
- Risk assessment should be repeated if the woman is admitted to hospital for any reason or develops complications

2.2.3 Risk assessment should be done by a trained doctor. If a midwife is running the ANC, then the assessment can be done by the trained midwife.

Table 1: Risk factors for venous thromboembolism and risk assessment scoring[1]

Risk Factors	Score
Pre-existing risk factors	
Previous history of VTE (except single event provoked by major surgery)	4
Previous history of VTE provoked by major surgery	3
Thrombophilia - o Heritable: Antithrombin Deficiency Protein C, Protein S Deficiency Factor V Leiden, Prothrombin Gene mutation o Acquired: Antiphospholipid Syndrome, Persistent Lupus Anticoagulant Persistent moderate /high titre anti cardiolipin antibodies or Persistent beta 2 glycoprotein antibodies	3
Medical co-morbidities e.g. cancer, heart failure, active SLE, inflammatory Poly arthropathy or inflammatory bowel disease, nephrotic syndrome, Type I diabetes with nephropathy, sickle cell disease, current intravenous drug user	3
Family history of unprovoked or oestrogen provoked VTE in first degree relative	1
Low risk thrombophilia	1
Age >35 years	1
Obesity BMI from 30-39 kg/m2 at booking	1
Obesity BMI ≥ 40 kg/m2 at booking	2
Parity ≥ 3	1
Smoking	1
Paraplegia	1
Gross varicose veins	1
Obstetrics risk factors in current pregnancy	
Pre-eclampsia	1
ART/IVF*	1
Multiple pregnancy	1
Emergency Caesarean Section	2
Elective Caesarean section	1
Mid cavity or rotational operative delivery	1
Prolonged labour >24 hour	1

[1] *Adopted from the Royal College of obstetricians & Gynaecologists (RCOG) (2015),*

PPH >1 litre	1
Preterm < 37 weeks of birth	1
Stillbirth	1
New onset / transient risk factors in current pregnancy	
Any surgical procedure in pregnancy or puerperium	3
Hyperemesis** /dehydration	3
Ovarian hyperstimulation Syndrome (1st trimester only) ***	4
Immobility	1
Current systemic infection	1
Long hours of travel > 4 hours.	1

* **ART** assisted reproductive technology; **IVF** in vitro fertilisation

****Hyperemesis gravidarum**: is the severe form of nausea and vomiting of pregnancy. It can be diagnosed when there is persistent nausea and vomiting of pregnancy with dehydration and electrolyte imbalance.

*****Ovarian Hyper Stimulation Syndrome**: is a complication of fertility treatment (assisted reproduction technology).

2.3 Referral to obstetricians

2.3.1 Any pregnant woman with a history of VTE should be referred immediately at booking to obstetrician for initiation of thromboprophylaxis.

2.3.2 Any pregnant woman with VTE risk factors score ≥ 4 should be referred at booking to secondary/ tertiary care for initiation of thromboprophylaxis.

2.3.3 Any pregnant woman with VTE risk factors score 3 should be referred to an obstetrician during the antenatal care for initiation of prophylaxis at 28 weeks of pregnancy.

2.4 Advice to pregnant women:

Discuss the risk of VTE in pregnancy and the importance of seeking urgent medical assistance if symptoms develop. Symptoms and signs of pulmonary embolism and deep vein thrombosis:

2.4.1 Pulmonary embolism:

- Dyspnoea (most common symptom of PE)
- Palpitations/tachycardia
- Chest pain
- Haemoptysis
- Hypoxia/cyanosis
- Tachypnoea
- Hypotension

- Collapse

2.4.2 Deep vein thrombosis

- In pregnancy is often proximal and may not present with usual features of distal DVT
- Unilateral leg pain
- Swelling in an extremity with pitting oedema
- Increase in calf/thigh circumference particularly of 2 cm or more
- Increased temperature
- Prominent superficial veins
- Pitting oedema
- Importance of mobilization and hydration in preventing VTE in pregnancy and after birth.

2.5 Thromboprophylaxis according to risk assessment

2.5.1 Initiation of thromboprophylaxis according to VTE risk assessment should be done by an obstetrician at secondary / tertiary health care institutions. Dose and duration of thromboprophylaxis agent to be clearly documented in the Maternal Health Record (Green card), with the plan for follow-up see (Figure 1)

2.5.2 Management should be taken by haematologist in women with following conditions:

2.5.2.1 Women with previous confirmed VTE

2.5.2.2 Woman with multiple previous VTE (no other risk factors)

2.5.2.3 Women with previous VTE and heritable thrombophilia (antithrombin deficiency) on long term anticoagulants.

2.5.2.4 Woman with previous VTE and acquired thrombophilia (antiphospholipid syndrome), no long-term oral anticoagulation.

2.5.3 Women receiving antenatal LMWH should be advised to stop LMWH if they have vaginal bleeding or labour signs.

2.5.4 Women receiving antenatal LMWH (prophylactic dose), and planned for elective caesarean section, should receive LMWH on the day prior to delivery, but not later than 18:00 hours. Any morning dose on the day of delivery should be omitted.

2.5.5 Risk assessment should be performed in each woman at least once following delivery and before discharge, see (Figure 2)

2.5.6 Start or resume thromboprophylaxis 4-6 hours after vaginal delivery and 6-8 hours after caesarean section.

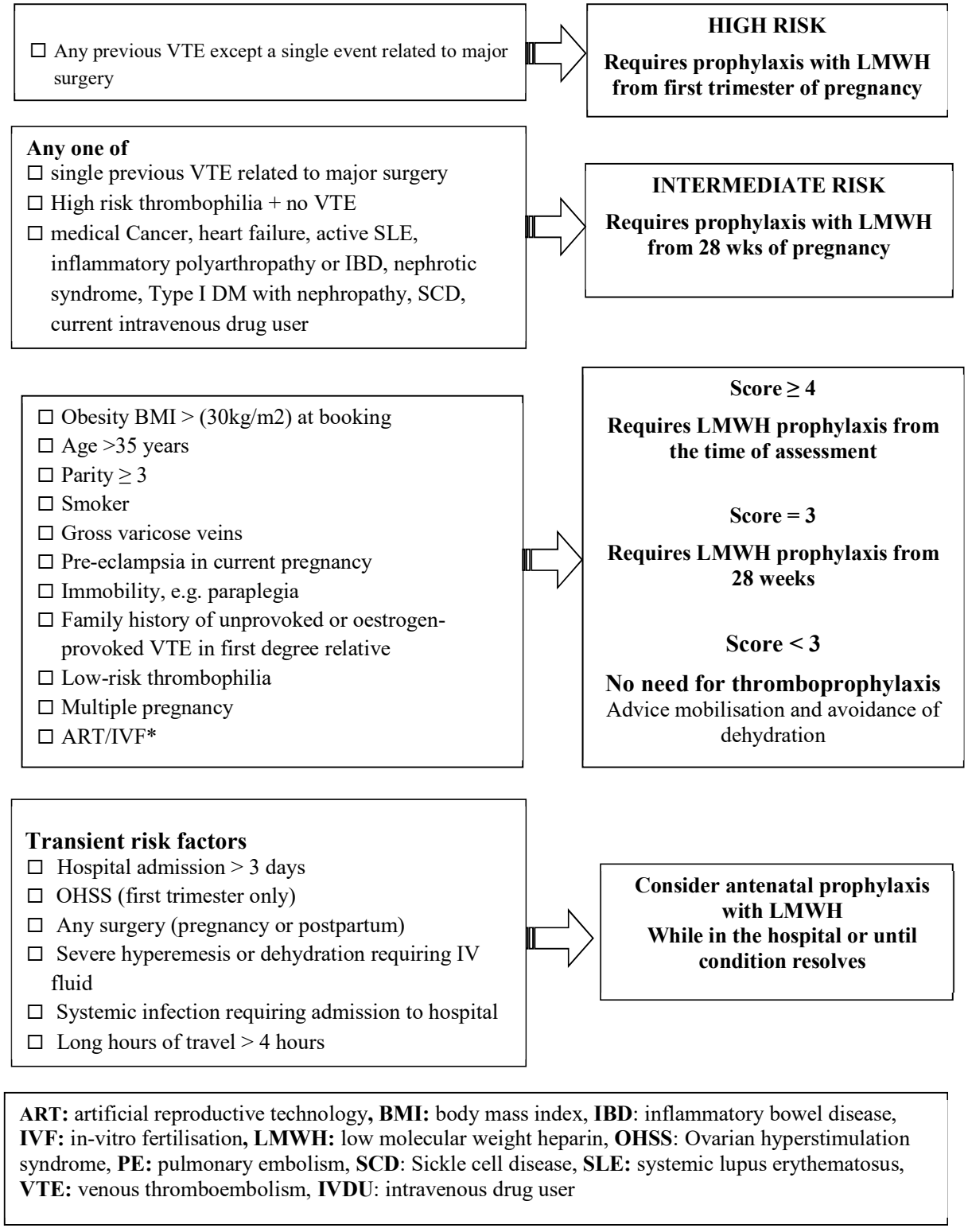
2.5.7 Women with multiple previous VTE and women with previous VTE and heritable thrombophilia consider a high dose of LMWH for 6 weeks until returned to oral anticoagulation therapy.

2.5.8 Woman delivered with high risk of haemorrhage due to: major antepartum haemorrhage, coagulopathy, progressive wound hematoma, suspected intra-abdominal bleeding and postpartum haemorrhage ask haematologist for advice, restart LMWH as soon as possible when haemorrhage is reduced, platelet count every 2-3 days from Days 4-14 or until stopped

2.5.9 Women at very high risk of thrombosis where regional aesthetic technique may be required or there is an increased risk of haemorrhage, ask a haematologist for advice. Avoid regional techniques for at least 12 hours after the previous dose of LMWH. Avoid regional techniques for at least 24 hours after the last dose of LMWH, if the patient on a therapeutic regimen of LMWH

2.5.10 Avoid LMWH for 4 hours after use of spinal anaesthesia or after the epidural catheter has been removed within 12 hours of the most recent injection.

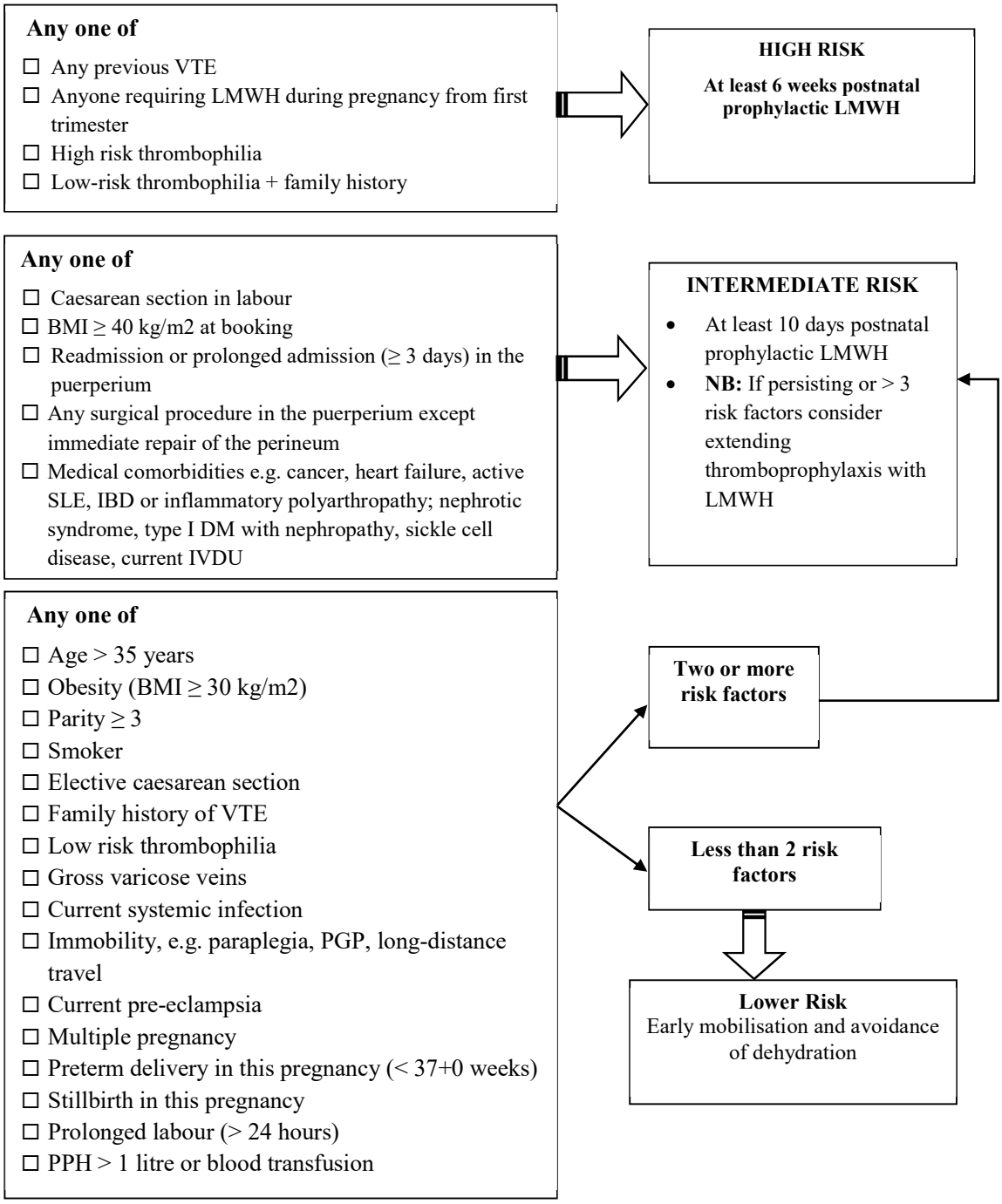
Figure 1: Antenatal thromboprophylaxis according to risk[2]



ART: artificial reproductive technology**, BMI:** body mass index, **IBD**: inflammatory bowel disease, **IVF:** in-vitro fertilisation**, LMWH:** low molecular weight heparin, **OHSS**: Ovarian hyperstimulation syndrome, **PE:** pulmonary embolism, **SCD**: Sickle cell disease, **SLE:** systemic lupus erythematosus, **VTE:** venous thromboembolism, **IVDU**: intravenous drug user

[2] *Adopted from the Royal College of obstetricians & Gynecologists (RCOG) (2015),*

Figure 2: Postnatal thromboprophylaxis according to risk score[3]



ART: artificial reproductive technology**, BMI:** body mass index, **IBD**: inflammatory bowel disease, **IVF:** in-vitro fertilisation**, LMWH:** low molecular weight heparin, **OHSS**: Ovarian hyperstimulation syndrome, **PE:** pulmonary embolism, **SCD**: Sickle cell disease, **SLE:** systemic lupus erythematosus, **VTE:** venous thromboembolism, **IVDU**: intravenous drug user

[3] *Adopted from the Royal College of obstetricians & Gynaecologists (RCOG) (2015),*

2.6 Agents for Thromboprophylaxis

2.6.1 Low Molecular Weight Heparin (LMWH) are the agents of choice for antenatal and postnatal thromboprophylaxis.

2.6.2 Unfractionated heparin (UFH) can be used as an alternative in women with risk of bleeding or have allergic reactions to LMWH.

2.6.3 The following table illustrates the suggested thromboprophylactic doses for LMWH antenatal and postnatal:

Table 2: Thromboprophylaxis during pregnancy and postpartum

Booking or early pregnancy weight (Kg)	**Enoxaparin Sodium (LMWH)**
< 50	20 mg (2000 units) once daily
50-90	40 mg (4000 units)once daily
91-130	60 mg (6000 units) once daily OR 2 divided doses
131-170	80 mg (8000units) daily 2 divided doses
>170	0.6mg (60 units) /kg/day - 2 divided doses
High prophylactic dose for women weighing 50–90 kg	40 mg (4000 units) 12 hourly
Unfractionated heparin (UFH) Alternative to enoxaparin sodium in women with risk of bleeding OR allergic reactions to LMWH: unfractionated heparin (UFH) dose : 5000-10000 units every 12 hours, to be administered with monitoring	

Remarks:

- Counsel the patient on LMWH during pregnancy to stop the LMWH injection if she has vaginal bleeding or labour signs.
- Thromboprophylaxis should be started as soon as the immediate risk of haemorrhage is reduced.
- If the patient has had exposure to unfractionated heparin (UFH), monitor platelet count.
- Do not monitor anti-Xa levels when LMWH is used for thromboprophylaxis.
- Reduce LMWH dose in patients with renal impairment.

2.7 Contraindication / cautions of low molecular weight thromboprophylaxis

2.7.1 In women at risk of bleeding after careful consideration of the balance of risks of bleeding and thrombosis.

2.7.2 Previous or current allergic reactions to LMWH

2.7.3 Active bleeding, coagulopathy or low platelets (fewer than 75 x 109 /l). to be delayed

2.7.4 Known bleeding disorder (e.g. haemophilia, von Willebrand disease or acquired coagulopathy)

2.7.5 Active antenatal or postpartum bleeding or considered at increased risk of major haemorrhage

2.7.6 Acute stroke (haemorrhagic or ischemic) in previous 4 weeks

2.7.7 Severe renal disease (glomerular filtration rate [GFR] < 30 ml/minute

2.7.8 Severe liver disease with prolonged prothrombin time.

2.7.9 Uncontrolled hypertension (blood pressure > 200 mmHg systolic or > 120 mmHg diastolic)

Note:

- **Warfarin is restricted in pregnancy to the few situations where heparin is considered unsuitable, e.g. in women with mechanical heart valves.**
- **Low-dose aspirin: is Not recommended as thromboprophylactic agent in obstetric patients**

2.8 Follow-up of woman on thromboprophylaxis

2.8.1 Ensure woman received guidance on how to take the LMWH injection, her daily dose, the site of injection, the rate of injection, infection control measures, and the disposal of the syringe after each use

2.8.2 Advise the woman to get the injection in the nearest primary health institution if she did not receive training on how to give herself the injection or not sure what to do.

2.8.3 If she missed taking the injection should take it as soon as possible, the next dose should be taken 24hours later and to keep a note of the new time.

2.8.4 Counsel the woman to stop LMWH injection if she has vaginal bleeding or labour signs and to attend to hospital.

2.8.5 If the patient has had prior exposure to unfractionated heparin (UFH), monitor platelet count

2.8.6 Do NOT monitor anti- Xa-levels when LMWH used for thromboprophylaxis

2.8.7 Reduce LMWH dose in patients with renal impairment

2.9 Instructions to woman on safe disposal of used heparin syringes

Ensure the following instructions were clearly given to the woman on thromboprophylaxis and her concerns and quires were answered.

1. **Place the syringes in a sharps disposal container immediately after they have been used.**
   - 1-1 DO NOT bend or break the needles after use.
   - 1-2 DO NOT recap the needles after use.
   - 1-3 DO NOT remove the needles after use.
   - 1-4 If you don't have "sharp container" you can use a plastic bottle with tight cap as sharp container.
   - 1-5 Close the "sharp container"/ bottle cap tightly after each use
   - 1-6 Be careful not to fill the container more than ¾ of its capacity
   - 1-7 Wash your hands immediately after disposing the syringe.
   - 1-8 Keep the container out of reach of children

2. **Dispose of used sharps disposal containers according to your health facility guidelines.**
   - 2-1 When the container is ¾ full, take it to the nearest health facility
   - 2-2 Give the container to the focal for disposal medical waste in the health facility.
   - 2-3 DO NOT throw sharp containers in trash
   - 2-4 DO NOT put in sharp containers in recycling bin.

3. **If someone is accidentally pricked with a used needle, advise him/her to wash the area around the puncture and visit the nearest health facility for medical advice.**

4. **Make sure the health education material (booklet) is given to the woman on thromboprophylaxis.**

CHAPTER THREE

3.1 Responsibilities

3.1.1 Responsibilities of doctors in antenatal care clinic at primary health care

- History taking to identify VTE risk factors during pregnancy.
- Apply risk assessment scoring for VTE for all pregnant women.
- Refer all pregnant women with score ≥3 to obstetrician for further evaluation and management.
- Document all relevant information in the maternal health record (green card).
- Report any side effects from thromboprophylaxis use and refer accordingly.

3.1.2 Responsibilities of obstetricians at secondary / tertiary health care

- Reassess all referred pregnant women for VTE risk.
- Provide counselling on importance of thromboprophylaxis and when to report any side effects.
- Provide thromboprophylaxis agents (type, frequency and duration).
- To put clear plan for follow up.
- Document of the plan for management and follow up in the patient's file and in the maternal health record (green card).
- Document and record client's information and thromboprophylaxis dose and duration on the educational leaflet.

3.1.3 Responsibilities of midwife / nurse (outpatient clinics and inpatient in the ward)

- Provide Counselling on importance of thromboprophylaxis and report any side effects.
- Explain to the client how to give self-injection and storage and disposable instructions.
- Explain to one of the client's family member how to give heparin injection if the client refused self-injection

3.1.4 Responsibilities of pharmacist

- Provide prescription review for appropriateness
- Double check prepared medication
- Provide patient counselling regarding the medication usage, importance of adherence, Instruction in the injection technique, dose, storage, Safe disposal and importance on thromboprophylaxis when to report drug related problem
- Instruct the patient what to do with the leftover of the heparin injections
- Keep records for any returned medicines

- Document pharmacist interventions in A-Shifa system /manual
- Conduct medication utilization review in coordination with pharmaceutical care department at (DGMS) and submit to drug and therapeutic committee
- Maintain the records pertaining to thromboprophylaxis agent administered to the patients that may be utilized for the evaluation of the drug therapy
- Calculate monthly consumption & Coordinate with DGMS (Drug store) to maintain continuous supply

3.1.5 Responsibilities of the Woman and child health department

- Review and update the guideline based on available new evidence base guidelines and according to best practices of an expert group in the country.
- Plan and organize training workshops to train doctors and nurses on how to do thromboembolism risk assessment and thromboprophylaxis.
- Monitor and evaluate service provision in all health institutions
- Liaise with the concerned department to maintain continuous supply of the LMWH injections in the health institutions.

3.1.6 Responsibilities of the directorate of Pharmaceutical care (DGMS)

- Coordinate with pharmacists at health units for the thromboprophylaxis use evaluation
- Update pharmacists on emerging evidence base knowledge on the use of thromboprophylaxis in pregnancy
- Conduct training workshop for pharmacists regarding all aspects in the use of thromboprophylaxis in pregnancy
- Coordinate with department of women and child health in regards to the available new evidence base guidelines to update the national guideline
- Monitor and evaluate Drug related problems
- Monitor and evaluate pharmaceutical care services
- Prepare and disseminate of patient /pharmacist information leaflets in coordination with directorate of rational use of medicine (DRUM)

3.1.7 Responsibilities of the Directorate of Rational use of Medicine

- Update pharmacists on the use of thromboprophylaxis in pregnancy.
- Monitor and evaluate the rational of use thromboprophylaxis agents in prevention of thromboembolism in pregnant women.
- Coordinate with department of women and child health in regards to the available new evidence base guidelines to update the national guideline and the educational material.
- Participate in the training workshops for health care workers to update their knowledge on VTE risk assessment and thromboprophylaxis agents.
- Preparation and dissemination of patient information materials e.g. leaflets, booklet.

CHAPTER FOUR

4.1 Document history and version control table

Document History and Version Control			
Version	**Description of Amendment**	**Author**	**Review Date**
01	Initial Release	Team for developing the guidelines for Management of Venous Thromboembolism Risk Assessment and Thromboprophylaxis	December 2024
02			
03			
04			
05			

Written by	**Reviewed by**	**Approved by**
Team for developing the guidelines for Management of Venous Thromboembolism Risk Assessment and Thromboprophylaxis	Team for developing the guidelines for Management of Venous Thromboembolism Risk Assessment and Thromboprophylaxis	Dr Said Al Lamki

4.2 References:

- Department of Obstetrics and Gynaecology, Royal hospital (2015), Thromboprophylaxis in Pregnancy - The - OBG GUD - GUD/OBG/CLN/01/Vers.2.0.

- Sultan Qaboos University Hospital, Department of Obstetrics and Gynaecology, Antenatal Thromboprophylaxis Document No: Obg-Obg-Pro-047, Version No :01 Originated Date:22/2/2016 Revision, Dr. Manahil Hassan

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4.3 Annexes

Annex 1: Venous thromboembolism risk scoring and thromboprophylaxis

Risk Factors	Score
Pre-existing risk factors	
Previous history of VTE (except single event provoked by major surgery)	4
Previous history of VTE provoked by major surgery	3
Thrombophilia - o Heritable: Antithrombin Deficiency Protein C, Protein S Deficiency Factor V Leiden, Prothrombin Gene mutation o Acquired: Antiphospholipid Syndrome, Persistent Lupus Anticoagulant Persistent moderate /high titre anti cardiolipin antibodies or Persistent beta 2 glycoprotein antibodies	3
Medical co-morbidities e.g. cancer, heart failure, active SLE, inflammatory polyarthropathy or inflammatory bowel disease, nephrotic syndrome, Type I diabetes with nephropathy, sickle cell disease, current intravenous drug user	3
Family history of unprovoked or estrogen provoked VTE in first degree relative	1
Low risk thrombophilia	1
Age >35 years	1
Obesity BMI from 30-39 kg/m2 at booking	1
Obesity BMI ≥ 40 kg/m2 at booking	2
Parity ≥ 3	1
Smoking	1
Paraplegia	1
Gross varicose veins	1
Obstetrics risk factors in current pregnancy	
Pre-eclampsia	1
ART/IVF*	1
Multiple pregnancy	1
Emergency Cesarean Section	2
Elective Cesarean section	1
Mid cavity or rotational operative delivery	1
Prolonged labour >24 hour	1
PPH >1 litre	1

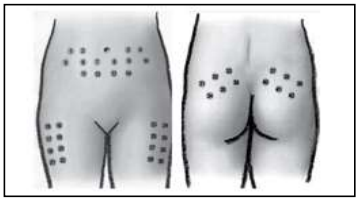
Preterm < 37 weeks of birth	1
Stillbirth	1
New onset / transient risk factors in current pregnancy	
Any surgical procedure in pregnancy or puerperium	3
Hyperemesis** /dehydration	3
Ovarian hyperstimulation Syndrome (1st trimester only) ***	4
Immobility	1
Current systemic infection	1
Long hours of travel > 4 hours.	1

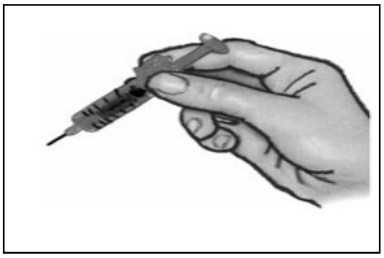
Risk Score	**Antenatal Thromboprophylaxis**	**Postpartum Thromboprophylaxis**
If total score ≥ 4 (antenatal)	Consider thromboprophylaxis from first trimester	Thromboprophylaxis for 6 weeks postnatal
If total score = 3 (antenatal)	Consider thromboprophylaxis from 28 weeks	Thromboprophylaxis for 6 weeks postnatal (Postnatal risk reassessment to be made)
If total score ≥ 2 postnatal	-	Consider thromboprophylaxis for at least 10 days
New Onset/ Transient potentially reversible risk factors	Consider thromboprophylaxis	Consider thromboprophylaxis

Annex 2: Instruction to women on how to take LMWH self- injection

STEP 1:

Wash your hands and make sure that the area you are going to inject is clean before you begin. Be sure to use different area (site) to inject each day to help to prevent bruising (see figure)





STEP 2

Open the back and remove the syringe, make sure sure the medicine is clear and has nothing floating in it. If you see anything in the medicine don't use

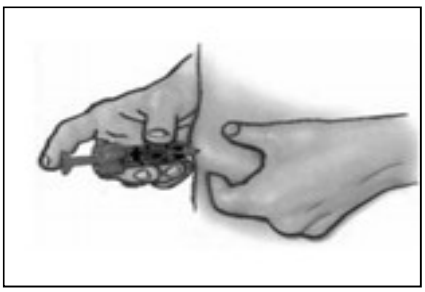
Do not squeeze the syringe to remove the air bubble as you may lose some of the medicine and then not have a full dose.

STEP 3

You need to make sure that you inject LMWH into fatty tissue. To do this , pinch afold of skin between the thumb and fingers of one hand.

- If you are going to inject in your abdomen (tummy area) it is best to do this while sitting.
- If you are using your outer thigh it is best to do this when sitting or lying down.
- If you decide to inject into your (buttock) you may not need to pinch any skin as there should already be enough of layer of fatty tissue.

LMWH must not be injected into the muscle as it won't be absorbed properly.



STEP 4

Hold the seringe with your other hand. Insert the entire needle into the fold of skin at a 45-90 degree angle. Then slowly

	press the plunger down until the full dose of LMWH has been given
STEP 5 Remove the needle while letting go of the fold of skin. Dispose of the syringe into yellow “sharp” box you have been given.