VENOUS THROMBOEMBOLISM
THROMBOPROPHYLAXIS, MANAGEMENT & TREATMENT OF THROMBOSIS IN THE
ANTENATAL, INTRAPARTUM & POSTNATAL PERIOD

<table>
<thead>
<tr>
<th>Guideline Reference No.</th>
<th>111</th>
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<tbody>
<tr>
<td>Lead Director:</td>
<td>Medical Director, Family &amp; Women’s Health Group</td>
</tr>
<tr>
<td>Author:</td>
<td>Julia Chambers / Reeta Jha</td>
</tr>
<tr>
<td>First Version Issued On:</td>
<td>August 2008</td>
</tr>
<tr>
<td>Latest Version Issued On:</td>
<td>May 2014</td>
</tr>
<tr>
<td>Review Date:</td>
<td>November 2015</td>
</tr>
<tr>
<td>Consultation Process:</td>
<td>Obstetricians, Midwives</td>
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<tr>
<td>Endorsed By:</td>
<td>Obstetric Guidelines Group</td>
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<tr>
<td>Ratified By:</td>
<td>Obstetric &amp; Gynaecology Governance Group</td>
</tr>
<tr>
<td>Target Audience:</td>
<td>All Obstetricians and Midwives caring for women in the antenatal, intrapartum and postnatal period.</td>
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<tr>
<td>Distribution:</td>
<td>All Obstetricians within the Family &amp; women’s Health group, Medical Director, Head of Midwifery/Divisional Nurse, Matrons &amp; Sisters for consultation with Midwives / nurses</td>
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When this document is viewed as a paper copy, the reader is responsible for checking that it is the most current version. This can be checked by accessing the database of policies on the Trust intranet

<table>
<thead>
<tr>
<th>Date</th>
<th>Author</th>
<th>Nature of Change</th>
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<tr>
<td>November 2011</td>
<td>Obstetric Guidelines Group</td>
<td>Incorporate national guidance</td>
<td>V2</td>
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<td>August 2012</td>
<td>Obstetric Guidelines Group</td>
<td>Changes to practise, recommendations from SUI</td>
<td>V3</td>
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<tr>
<td>November 2012</td>
<td>Compliance Manager</td>
<td>Minor amendments to section 5</td>
<td>V4</td>
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<tr>
<td>May 2014</td>
<td>Obstetric Guidelines Group</td>
<td>Amendment to monitoring form – frequency of audit</td>
<td>V4.1</td>
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VENOUS THROMBOEMBOLISM
THROMBOPROPHYLAXIS, MANAGEMENT & TREATMENT OF THROMBOSIS IN THE ANTENATAL, INTRAPARTUM & POSTNATAL PERIOD

1 INTRODUCTION
Venous Thromboembolism is up to ten times more common in pregnant women than in the non-pregnant woman of the same age and can occur at any stage of the pregnancy, however the puerperium remains the time of highest risk. Venous Thromboembolism remains one of the main causes of maternal death in the UK and has been a recurrent theme in the confidential enquiries into maternal and child health.

2 PURPOSE
Prevention of Venous Thromboembolism (VTE) is a Trust target for quality and safety to reduce avoidable harm by ensuring that at least 90% of all patients accessing the Trust have a full assessment on admission to hospital. The Hull & East Yorkshire Maternity Specific VTE Assessment (see appendix B) should be completed on the Maternity Drug Card, and an electronic VTE assessment completed on the Hull & East Yorkshire NHS Trust PatientCentre system at each admission (see appendix C).

3 SCOPE
All Midwives and Obstetricians working in Hull & east Yorkshire Maternity Services will care for women in accordance with this guideline.

4 DUTIES
Antenatal Booking
4.1 Midwife
It is the responsibility of the Midwife booking a woman for her pregnancy care to complete a Booking VTE Risk Assessment (appendix B) and complete a Consultant referral form for any women identified as intermediate or high risk.

4.2 Obstetric Consultant
It is the responsibility of the Obstetric Consultant to ensure the team review any cases sent for referral and instigate any necessary treatment for the antenatal period.

4.3 Joint Obstetric / Haematology Clinic
This clinic will review all women with current or previous thrombosis.

ON admission to hospital
4.4 Midwife
It is the responsibility of the Midwife to complete the Trust Maternity Specific VTE Assessment (see appendix B) for all women on admission to hospital and the Trust electronic VTE assessment on PatientCentre. Where ‘low risk’ is identified the midwife will complete the decision box. Where the woman’s situation changes then the Midwife will re-risk assess.

Where intermediate or high risk is identified either on initial assessment or on re-assessment, the Midwife will refer to the Obstetrician for completion of the decision making box.

4.5 Obstetrician
It is the responsibility of the Obstetric team to review all women with intermediate or high risk, implement appropriate therapies and complete the decision making box on the VTE Assessment.
5 CONTENT

5.1 Timing of Risk Assessment
Women are at risk of thromboembolism from the very beginning of pregnancy until the end of the puerperium. All women will be risk assessed at their booking appointment (see appendix B) and reassessed at every hospital admission (see appendix C) and following delivery.

5.1.1 Booking

**Booking Appointment – All women**

- Complete Booking VTE Risk Assessment form (appendix B) this risk assessment will identify the level of risk e.g. low, intermediate or high

**Low risk** – mobilisation and avoidance of dehydration

**Intermediate risk** – consider antenatal LMWH

**High Risk** – requires antenatal LMWH

### Antenatal prophylactic LMWH Schedule

<table>
<thead>
<tr>
<th>Weight</th>
<th>Dose</th>
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<tbody>
<tr>
<td>&lt; 50kg</td>
<td>2500 units dalteparin</td>
</tr>
<tr>
<td>50-90 kg</td>
<td>5000 units dalteparin</td>
</tr>
<tr>
<td>91-130 kg</td>
<td>7500 units dalteparin</td>
</tr>
<tr>
<td>131-170 kg</td>
<td>10000 units dalteparin</td>
</tr>
<tr>
<td>&gt;170 kg</td>
<td>75 units/kg/day dalteparin</td>
</tr>
</tbody>
</table>

The dose given, is determined by the most recent maternal weight

*LMWH = Low molecular weight heparin

5.1.2 Antenatal Suspicion of DVT
Where a community or ADU midwife suspects a DVT in a pregnant lady they can refer directly into the Hull Community Deep Vein Thrombosis Service for assessment, diagnosis and treatment. The lady must have been seen by either a midwife or doctor (not simply a telephone triage) and documentation of the review in the handheld records. If DVT suspected then referral to the service is by telephone referral, ensuring that the woman fulfils the Inclusion Criteria. See appendix D for Inclusion /Exclusion Criteria, service guideline and referral process.

For acute presentation of suspected thrombosis manage as section 5.5

5.1.3 Admission to hospital
All women on each admission to hospital will be risk assessed against the Hull & East Yorkshire NHS Trust Maternity Specific Inpatient Thromboprophylaxis Risk Assessment & Management Form (on the drug card) where a plan will be made for any thromboprophylaxis if required. Women will be re-assessed:
• 24 hours after admission
• wherever their situation may change e.g. prolonged immobility, ICC chart
• following delivery

All to be documented on the risk assessment form (appendix C)

Admission to hospital
- Complete VTE risk assessments- paper (appendix C) & electronic

Low risk
Actions
Advise Hydration & Mobilisation

Intermediate / High risk
Actions
Review by Obstetrician
Decision box completed on risk assessment form
Trust’s Thromboprophylaxis patient information leaflet

Change to clinical situation e.g. prolonged immobility, pre-eclampsia

No change to clinical situation
Re-assess VTE on drug card following delivery

Low risk
Intermediate / high risk

Postnatal prophylactic LMWH Schedule
The dose given, is determined by maternal weight at 36 weeks gestation:

<table>
<thead>
<tr>
<th>Weight</th>
<th>Dose</th>
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</thead>
<tbody>
<tr>
<td>Weight &lt; 50kg</td>
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</tr>
<tr>
<td>Weight &gt;170 kg</td>
<td>75 units/kg/day dalteparin</td>
</tr>
</tbody>
</table>
5.1.4 Known Risk Factors Signs and Symptoms
In light of known risk factors (appendix B & C) the following signs and symptoms of VTE require immediate assessment by senior obstetricians:

• Leg pain and swelling (usually unilateral)
• Dyspnoea
• Chest pain
• Haemoptysis and collapse.

5.2 Thromboprophylaxis during Pregnancy, Labour and Delivery and the Postnatal Period

5.2.1 Low Molecular Weight Heparin
The dose schedules for LMWH in the antenatal and postnatal period are highlighted within the flowcharts in sections 5.1.3 and 5.7.

5.2.2 Graduated Compression Stockings
Graduated compression stockings are to be fitted and properly applied ensuring the woman is aware of how to correctly apply. The following women should be advised to wear graduated compression stockings:

Antenatal
• Women with previous VTE (usually combined with LMWH)
• Women travelling long-distances >4hours
• Women who are hospitalised but have a contraindication to LMWH
• Women admitted for EL LSCS see Trust guideline http://intranet/guidelines/guidelines/290.pdf
• As per Consultant guidance

Intrapartum
• Women taken to theatre with regional anaesthesia or GA should have compression stockings applied prior to transfer if clinical situation allows.
• Consider in women with BMI>40kg/m² who are immobile see Trust Guideline 240 Guidelines for the Management of Obesity in Pregnancy http://intranet/guidelines/guidelines/240.pdf
• As per obstetrician guidance

Postnatal
Stockings to be worn for 2 weeks post delivery unless stated otherwise in management plan.
• Any woman receiving LMWH
• Any woman with a contraindication to LMWH

5.2.3 Sequential Compression Devices
It is advised that the following women have sequential compression devices fitted:
• Women taken to theatre with regional analgesia or GA will have sequential compression devices applied in theatre and maintained postnatally until transfer to the postnatal ward.
• Women being cared for on the Intensive Care Chart, on Labour Ward, with significantly reduced mobility
• At Consultant guidance
5.3 Care during Labour and Delivery for women on Thromboprophylaxis
Any women receiving antenatal LMWH should be advised that once labour begins they should not inject with any further LMWH. In these women the following should be observed:

Regional analgesia or anaesthesia cannot be used until at least:
- Twelve hours from the last dose of prophylactic LMWH
- Twenty-four hours from the last dose of therapeutic LMWH

Any women who require to continue with LMWH with epidural in situ, discuss management with Consultant Anaesthetist.

5.4 Postnatal Prophylactic LMWH
Commence no less than four hours after delivery, or removal of an epidural catheter (whichever is the later) or if spinal or general anaesthetic discuss with anaesthetist.

All women will be advised re signs and symptoms thrombosis as part of their discharge discussion and as per ‘Prevention of circulatory problems’ in the Postnatal Maternal Record.

Intermediate risk women will also be discharged home with 7 days of postnatal LMWH.

High risk women will also be discharged home with at least 6 weeks of LMWH.

Prior to discharge home women requiring postnatal LMWH will have a demonstration on how to self-administer LMWH (or demonstration given to nominated person). Women will be provided with a burn bin and the Trust’s Thromboprophylaxis patient information leaflet and DVD. The leaflet and DVD supports the woman with the self administration of LMWH.

Low risk women will be advised re signs and symptoms thrombosis as part of their discharge discussion and as per ‘Prevention of circulatory problems’ in the Postnatal Maternal Record.

5.5 Women diagnosed with VTE during pregnancy or postnatal period
All women who have been diagnosed with a VTE during pregnancy will attend appointments with an appropriate clinician; consultant obstetrician and Consultant Haematologist in a specialist obstetric thrombosis clinic as identified in their individual management plans. All discussion and treatment will be documented in woman’s maternity hospital notes and their hand held records.

All women who have been diagnosed with a VTE during the postnatal period will be referred to their registered GP via an Immediate Discharge Letter (IDL) for continued monitoring and management.

5.6 Management of massive life-threatening thrombosis in pregnancy
Collapsed, shocked patients need to be assessed by a multidisciplinary team of experienced clinicians including Consultant Obstetrician, Consultant Anaesthetist and Consultant Haematologist who will decide on an individual basis whether a woman receives intravenous unfractionated heparin, thrombolytic therapy or thoracotomy and surgical embolectomy. Intravenous unfractionated heparin is the preferred treatment in massive PTE with cardiovascular compromise.
The on-call medical team will be contacted immediately. An urgent portable echocardiogram or CTPA within 1 hour of presentation will be arranged. If massive PTE is confirmed or, in extreme circumstances prior to confirmation, immediate thrombolysis should be considered.

Management will involve a multidisciplinary resuscitation team including senior physicians, obstetricians and radiologists and all decisions documented in any of the following:
- Antenatal Care Plan
- Labour Record
- Postnatal care Plan
- Intensive care Chart
- Or Speciality specific paperwork
Depending on which is most appropriate.

5.7 Diagnosis & Management of Acute VTE in pregnancy and Puerperium

See the following flow chart.

All suspected cases should be discussed with Consultant Obstetrician. Treatment with LMWH should be given until the diagnosis has been excluded by objective testing unless treatment is strongly contraindicated.

**LMWH Treatment = 100 units/kg* twice daily**
*use booking weight or most recent documented to calculate
5.8 Documentation
All women who require Thromboprophylaxis or treatment following diagnosis of VTE will have an individual management plans to be documented in the relevant paperwork which will be documented in any one of the following health records:
• Antenatal Care Plan
• Postnatal care Plan
• Labour Record
• Intensive Care Chart
• Or any relevant sheets from other specialities

6 PROCESS FOR MONITORING COMPLIANCE
The process for monitoring compliance with this guideline is detailed in Appendix A.

7 REFERENCES

8 APPENDICES
• Appendix A – Monitoring Overview
• Appendix B – Antenatal Booking Risk Assessment form
• Appendix C – In-patient Maternity Specific Risk Assessment form
• Appendix D – Hull Community Deep Vein Thrombosis Services
• Appendix E – Facts and Counselling regarding Chest x-ray, V/Q Scan & CTPA
### MONITORING OVERVIEW

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>Lead</th>
<th>Tool</th>
<th>Frequency</th>
<th>Reporting arrangements</th>
<th>Acting on recommendations and Lead(s)</th>
<th>Change in practice and lessons to be shared</th>
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<tbody>
<tr>
<td>a. appropriate and timely risk assessments to identify those at risk of VTE</td>
<td>Midwives supported by Standard 3 Leads</td>
<td>Proforma</td>
<td>Once within the cycle of the guideline or as required following an identified reason from a risk management episode</td>
<td>Reported bi-annually to Labour Ward Forum &amp; outcomes form to the audit department</td>
<td>Required actions will be identified and completed in a specified timeframe as identified at LWF</td>
<td>Required changes to practice will be identified and actioned within a specific time frame. A lead member of the team will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders. These will be documented in the minutes of LWF</td>
</tr>
<tr>
<td>b. significance of signs and symptoms in light of known risk factors</td>
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<td>c. actions to be taken in response to the risk assessments once the risk of VTE has been identified</td>
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<td>d. requirement to document an individual management plan in the health records of women who require thromboprophylaxis or treatment for a diagnosis of VTE</td>
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<td>e. thromboprophylaxis during pregnancy</td>
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<td>f. care during labour and delivery of women on thromboprophylaxis</td>
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<td>g. thromboprophylaxis during the postnatal period</td>
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<tr>
<td>i. process for offering a postnatal appointment with an appropriate clinician to all women who have been have been diagnosed with VTE during pregnancy or the postnatal period</td>
<td>Identified medic supported by Standard 3 leads</td>
<td>Proforma</td>
<td>Once within the cycle of the guideline or as required following an identified reason from a risk management episode</td>
<td>Presented annually at Perinatal Mortality</td>
<td>Required actions will be identified and completed in a specified timeframe as identified at Perinatal mortality</td>
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Antenatal Booking
Thromboprophylaxis Risk Assessment

**Box A**
- Single previous VTE + Thrombophilia or family history
- Single previous VTE + Unprovoked/oestrogen-related
- Previous recurrent VTE (>1)

**Box B**
- Single previous VTE with no family history or thrombophilia
- Thrombophilia + no VTE
- Medical Co-morbidities e.g. Heart or lung disease, SLE, cancer, inflammatory conditions, nephritic syndrome, sickle cell disease, intravenous drug user
- Surgical procedure e.g. appendicectomy
- Intravenous drug user

**Box C**
- Age >35 years
- Obesity (BMI >30kg/m² – Score 1) (BMI >40kg/m² – Score 2)
- Parity ≥3
- Smoker
- Gross varicose veins
- Current systemic infection
- Immobility e.g. paraplegia, SPD, long-distance travel (consider TED stockings)
- Pre-eclampsia
- Dehydration/hyperemesis/Ovarian Hyperstimulation Syndrome
- Multiple Pregnancy or Artificial Reproduction Treatment
- Previous VTE to a transient risk factor (no-oestrogen related) with a normal thrombophilia screen

**High Risk**
Requires antenatal prophylaxis with LMWH
Refer to Consultant Obstetrician; arrange review at joint obstetric/haematology clinic,

**Intermediate Risk**
Consider antenatal prophylaxis with LMWH
Seek guidance from Consultant Obstetrician (ensure risk factors stated on referral form)

**Low risk**
Encourage mobilisation and avoidance of dehydration
Inform of signs/symptoms

**Contraindications to LMWH** – if any of the following are present liaise with Consultant Obstetrician:
*Severe liver disease *Haemophilia or Von Willebrand's disease *Severe renal disease (GFR < 30ml/min)
*Low platelet count (<75 x 10^3) *BP of ≥ 200mmHg systolic or ≥120mmHg diastolic *Acute stroke (within 4 weeks) *Known hypersensitivity to LMWH

**Action:**
- Low risk - Advice only
- Intermediate/High Risk - Consultant referral completed

Assessment completed by ______________________ ______________________

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**APPENDIX B**

Addressograph

Date:
INPATIENT THROMBOPROPHYLAXIS RISK ASSESSMENT AND MANAGEMENT

Box A
- Any previous VTE+
- Anyone requiring antenatal LMWH

Box B
- Caesarean section in labour
- Asymptomatic thrombophilia (inherited or acquired)
- BMI >40kg/m²
- Prolonged hospital admission
- Medical comorbidities e.g. heart or lung disease, SLE, cancer, inflammatory conditions, nephrotic syndrome, sickle cell disease,
- Intravenous drug user

Box C
- Age >35 years
- Parity ≥3
- Smoker
- Elective caesarean section
- Any surgical procedure in the puerperium
- Gross varicose veins
- Current systemic infection
- Immobility e.g. paraplegia, SPD, long distance travel
- Pre-eclampsia
- Mid-cavity rotational operative delivery
- Prolonged labour (>24 hours)
- FPH >1 litre or blood transfusion

HIGH RISK
- At LEAST 6 weeks postnatal prophylactic LMWH

INTERMEDIATE RISK
- At LEAST 7 days postnatal prophylactic LMWH

LOWER RISK
- Mobilisation and avoidance of dehydration

Decision
- Risk assessor must review recommended prophylaxis and check for contra-indications
- Before prescribing appropriating thromboprophylaxis on dro chart:
  - Prophylaxis indicated: Yes/No
  - Prophylaxis contra-indicated: Yes/No

Document any reason for deviation from recommended guideline:

Final decision:
- Weight <50kg Dalteparin 2500 units SC daily at 18:00 hours
- Weight 50 – 90kg Dalteparin 5000 units SC daily at 18:00 hours
- Weight 91 – 130kg Dalteparin 7500 units SC daily at 18:00 hours
- Weight 131 – 170kg Dalteparin 10000 units SC daily at 18:00 hours
- Weight >170kg Dalteparin 25 units/kg/day SC at 18:00hrs

Total units to be administered:

OR
- No drug prophylaxis
- Mechanical prophylaxis (TEDs and Sequential compression devices)
- Patient counselled on VTE risk
- VTE Patient Information Leaflet given

Risk assessment:
- High Risk
- Intermediate Risk
- Low Risk

Reassess risks of VTE and bleeding within 24 hours of admission — document below

Changes:
- Risk assessment:
- High Risk
- Intermediate Risk
- Low Risk

Reassess risks of VTE and bleeding whenever clinical situation changes — document below

Changes:
- Risk assessment:
- High Risk
- Intermediate Risk
- Low Risk

Reassess risks of VTE and bleeding whenever clinical situation changes — document below

Changes:
COMMUNITY DVT SERVICE CLINIC REFERRAL FORM

TELEPHONE REFFERALS ONLY (9.30-8pm last referral 6pm)
TEL: 01482 335597  FAX: 01482 335505

Date & time of referral ..............................................NHS No. ........................................

Patients name.....................................................DOB ........................................

Address ..........................................................................................................................
.................................................................................................................................Post Code

Telephone Number ......................................................................................................

GP Name .....................................................................................................................

Practice Address ........................................................................................................
........................................................................................................................................

Practice Telephone Number ..................................Fax ........................................

Brief Summary of symptoms ............................................................... 
........................................................................................................................................

Concurrent Medical Conditions .................................................................
........................................................................................................................................

Current Medication Please attach copy of Medication ........................................

General Practitioners signature .............................................................................

Please refer to the inclusion/exclusion overleaf before referring the patient to the DVT Service.
Westbourne (NHS) Centre, Westbourne Avenue, HULL, HU3 5HP

City Health Care Partnership
**Patient Criteria and Selection**

Patients who may be referred to the Community DVT Service for Assessment, Diagnosis and Treatment.

- Patients aged 18 years of age and over.
- Access to telephone
- Suitable for Ambulatory care
- Stable Medical Condition
- Alcohol or substance misuse under stable clinical care with another primary health care professional/service.

**EXCLUSION CRITERIA**

- Patients not suitable for DVT pathway should be referred to Acute Assessment Unit by the General Practitioner:
  - Suspected DVT of upper limb
  - Patients under 18 years of age
  - Non Ambulatory patients including Residential care
  - Patients who require ambulance transport
  - Patients not registered with a GP
  - Patients with:
    - Severe hepatic impairment
    - Renal Failure with serum creatinine >170 umols/l
    - Thrombophilia
    - Confirmed bleeding disorder e.g. Haemophilia Platelets, 130
    - Heparin induced osteoporosis/thrombocytopenia
    - Uncontrolled hypertension >180/100 (>80 years 200/120)
    - Active bleeding e.g. intra-cerebral bleed within the last 6 months due to higher risk of haemorrhage
    - Endocarditis/Septic Endocarditis due to higher risk of haemorrhage
    - High bleeding risk i.e. Peptic ulcer/Oesophageal Varies
    - Brain or Spinal surgery within 6 months
    - Suspected pulmonary embolism
    - Bilateral DVT
    - Current severe Psychiatric or mental illness who are unlikely to comply
    - Frequent falls
    - Patients who are not contactable on day of referral
    - Patients unwilling to co-operate with the service
    - Memory impairments (unless measures to supervise medication are in place)
Pregnant Women with Suspected Deep Vein Thrombosis

AIM
The nurse led Community DVT team for City Health Care Partnership provides a high quality service that offers standardised and clinically effective diagnostic management and treatment to pregnant women who may have developed a deep vein thrombosis and other identifiable differential diagnosis. The service will be responsive to suit the needs of the patients within available resources.

OBJECTIVES
- To manage women effectively who require an investigation of a suspected DVT following a referral from their General Practitioner, Community Midwife, Antenatal Day Unit (if no ultrasound scan can be performed same day), Accident and Emergency Department
- To give optimum care in terms of diagnosis of DVT, management of care and reduction of further thromboembolism events or extension of an existing event.
- To follow an agreed pathway within the clinical governance framework
- To give optimum care in terms of patient satisfaction
- To educate patients and encourage improved compliance with treatment.

THE SERVICE WILL PROVIDE
a) A Five day-a-week service, Monday - Friday 9.30am – 8pm (last referral 6pm). Outside these hours women will be assessed in secondary care [Acute Assessment unit HRI] using agreed pathways.
b) A patient centred holistic assessment.
c) Diagnostic testing for patients with suspected DVT.
d) Referral pathways for further testing/diagnosis/differential diagnosis.
e) Expertise in the management of DVT and anticoagulant care in the clinic setting.
f) Advice and support for patients and their carers.
g) Education for health care professionals, patients and their carers.
h) Health screening.
i) Appropriate referral back to the obstetric department at the Womens and Childrens Hospital.

REFERRAL TO THE DEEP VEIN THROMBOSIS DIAGNOSTIC SERVICE
The patient must be able to attend the centre on the day of referral.
The community midwife, Antenatal Day Unit will record the contact number of referrer and symptoms in hand held records.
The patient treatment record must be completed by the Nurse Practitioner assessing the patient and details entered on computer.

- The referrer to telephone the service to discuss the patient.
- The service will not accept any responsibility for patients referred to the service with no prior telephone call.
- The referrer to ensure hand held record is with the patient.
- If the patient fails to bring the hand held record, the referrer will be contacted so that that correct information is obtained.
- An appointment will be provided for the patient to attend the same day by the service administrator.
- The patient will be assessed by the Nurse Practitioner.
Patients who fail to attend their appointments

The nurse practitioner will attempt to contact the patient by telephone. The nurse practitioner will contact the referrer by telephone and inform them that the patient has failed to attend within 24 hours of referral. This will be followed up in writing.

COMMUNITY NURSE LED INTEGRATED PATHWAY FOR AMBULATORY PATIENTS
Assessment of the patient will follow the guidance set out earlier in this document. The use of a D-dimer assay is of no clinical value (Kline J.A 2005) and is therefore unnecessary. A Full Blood Count and Biochemical Profile are not required.

The practitioner will arrange Doppler Ultrasound at the Westbourne Centre and review results.

DIFFERENTIAL DIAGNOSIS FOR PATIENTS WHO HAVE HAD A DVT EXCLUDED
The nurse will endeavour to identify the following Differential Diagnosis
- **Cellulitis** - Patients with Cellulitis require antibiotic therapy and referring back to their GP/Antenatal Day Unit after 7 days for further assessment. Guidelines for Treatment of Infections in Primary Care in Hull and East Riding [2006].
- **Superficial thrombophlebitis** - inflammation of a superficial vein, can treated with Paracetamol or Codeine if appropriate.
- **Muscular skeletal pain** - patient advised to take simple analgesia.
- **Leg oedema** - the nurse will refer to GP/Antenatal Day Unit for further assessment.

The practitioner will contact the Antenatal Day Unit HRI on 382729 or CHH Antenatal Day Unit on 622079, ext 4208, and leave the patients NAME, DATE OF BIRTH and ADDRESS.

The woman will be advised that if symptoms persist to contact the Antenatal Day Unit or Maple ward on 607779 (Sundays only).

A discharge letter will be written prior to the woman leaving the Westbourne Centre and a copy placed in the hand held records.

THE TREATMENT PATHWAY FOR PATIENTS WITH CONFIRMED DVT
The practitioner will contact Labour Ward at the Womens and Childrens Hospital on 604490 / 604390 and discuss ultrasound sound findings with the Consultant on call.

Treatment plan to be implemented and follow up with the obstetric department made.

Consultant to assess for the suitability for Warfarin therapy and length of treatment on post partum follow up.

Referral to the Anticoagulation team as and when required.

A discharge letter to be written prior the woman leaving the Westbourne Centre and a copy placed in the hand held records.

REFERENCES
APPENDIX E

FACTS AND COUNSELLING REGARDING CHEST X-RAY, V/Q SCAN AND CTPA

Chest X-ray

- The radiation dose to the fetus is negligible at any stage in pregnancy
- Results found to be normal in >50% of pregnant women with proven PE
- May identify other pulmonary disease e.g. pneumonia, pneumothorax, lobal collapse
- Abnormal features indicating PE:
  - atelectasis
  - effusion
  - focal opacities
  - pulmonary oedema
- If the x-ray is abnormal with a high clinical suspicion of pulmonary embolism a CTPA should be performed
- If the x-ray is normal and the patient is stable, bilateral Doppler USS should be performed
- If both chest x-ray and Doppler are normal, discuss with the radiologist regarding V/Q or CTPA

V/Q Scan

Women should be advised that V/Q scanning carried a slightly increased risk of childhood cancer compared with CTPA (1/280 000 versus less than 1 / 1 000 000) but carries a lower risk of maternal breast cancer (lifetime risk increased by 13.6% with CTPA, background risk of 1/200 for study population)

Advantages of V/Q over CTPA:
- high negative predictive value
- substantially lower radiation to pregnant breast tissue therefore in young women or those who have already had a previous CT chest lung perfusion scan this should be 1st choice.

Disadvantages of V/Q
- increased radiation to fetus
- potential delay because of availability of isotopes

CTPA

British Thoracic Society recommends CTPA as 1st line investigation for non-massive PTE in non pregnant women.

Advantages over V/Q imaging
- better sensitivity and specificity
- lower radiation dose to fetus
- can identify other pathology
- easily accessible

Disadvantages over V/Q
- high radiation dose to maternal breast
- may not identify small peripheral PE