The Newcastle upon Tyne Hospitals NHS Foundation Trust Venous
Thromboembolism (VTE) Assessment and Management

Version No: 2.0
Effective From: 16 April 2018
Expiry Date: 16 April 2021
Date Ratified: 23 March 2018
Ratified By: Clinical Risk Group

1 Introduction

Venous Thromboembolism (VTE) is a condition in which a blood clot (thrombus) forms in a vein, most commonly in the deep veins of the legs; this is called a deep vein thrombosis (DVT). Part of this thrombus may dislodge from its site of origin and travel in the blood to the lungs to cause a pulmonary embolus (PE). Patients admitted to hospital may be at increased risk of thrombosis through a combination of factors including their underlying medical condition, the treatment they are receiving for this and the procedures being undertaken in hospital. VTE is an important cause of death in hospital patients, and treatment of non-fatal symptomatic VTE and related long-term morbidities (chronic venous insufficiency, leg ulcers, and pulmonary hypertension) is associated with considerable cost to the health service. The risk of VTE can be reduced through the use of chemical and or mechanical thromboprophylaxis.

All adult patients admitted to hospital should have a VTE assessment that identifies any patient and procedural risk factors for thrombosis and bleeding. This risk assessment will inform selection of the most appropriate thromboprophylaxis taking into account patient preferences.

Within the organisation individual directorate guidelines have been developed for thromboprophylaxis and are to be used in conjunction with this policy. Patients developing symptoms during a hospital admission suggestive of VTE require further investigation and the approach to this and the management of confirmed VTE are also covered by this policy.

2 Scope

The VTE risk assessment policy applies to all adults admitted >18years age. The diagnostic pathways for suspected VTE and the principal of the management of VTE in adults is covered and specific treatment guidelines referenced.

In children below 18 years of age, VTE are clinically very rare, although can occur within specific high risk groups related to certain therapies or underlying conditions. Assessment of children at high risk of VTE and the management of confirmed thrombosis is covered in the paediatric directorate specific guidelines. The policy will outline the verbal and written information available for patients / carers which provide education on the signs and symptoms of VTE, thromboprophylaxis and management of VTE to allow patient involvement in the process.
3 Aims and objectives

The aim of this policy is to outline

- the VTE risk assessment of different patient groups within the Trust using the e-record electronic assessment tool
- the provision of appropriate thromboprophylaxis for patients identified at increased risk. The objective is to reduce the number of patients developing VTE during their hospital stay and in the 90 days following discharge.
- Procedures for investigating suspected VTE
- Treatment and further management of patients diagnosed with VTE

Specific prescribing information should be referenced with the current BNF or the SPC for the drug.

4 Process/ risk assessment for identifying patients at risk of venous Thromboembolism

4.1 All adult patients admitted to Newcastle upon Tyne Hospitals NHS Trust must have a VTE & bleeding risk assessment completed on e-record. Guidance on completing e-record VTE assessment. Specific VTE assessment forms are available for admissions in the following clinical areas: Antenatal, postnatal, trauma, plastic surgery and neurosurgery. For all other adult admissions the standard risk assessment on e-record is to be completed. As the risk of VTE is less in individuals <18 years, routine paediatric admissions do not require a risk assessment and are not considered further in this policy. However, for children <18 admitted to paediatric intensive care unit a Paediatric assessment tool is available (Appendix 1).

4.2 For elective surgical patients VTE risk can be assessed at the pre-operative assessment clinic or on admission. Likewise obstetric risk assessments may be undertaken in the antenatal clinics.

4.3 For emergency medical and surgical patient admissions the assessment will be undertaken by the admitting doctor prior to prescribing medication.

4.4 The VTE risk must be reviewed following any clinical change by reopening the admission assessment form and documenting any changes in bleeding/thrombotic risk. If the risk category of the patient has changed and thromboprophylaxis is altered the rationale should be documented in the clinical notes.

4.5 Risk assessment will be undertaken by the junior doctor admitting the patient or registered nurses as appropriate to the clinical area. Within surgical pre-admission clinics and antenatal clinics this may be delegated to a nurse / midwife working within their Directorate guidelines.

4.6 The patient’s VTE risk should be recorded in the clinical notes and if appropriate, thromboprophylaxis (chemical, mechanical or a combination of both) must be prescribed. Treatment must take into account any
contraindications to chemical or mechanical therapies and directorate specific guidelines. Contraindications must be recorded in the patient’s healthcare record.

4.7 For surgical patients it is the responsibility of the surgical team to prescribe thromboprophylaxis both pre and post operatively. The thromboprophylaxis plan should be reviewed post-operatively before the patient leaves theatre and documented.

4.8 The need for extended thromboprophylaxis must be considered in certain cases including following total hip & knee replacement, fractured neck of femur, patients in lower limb casts, and abdominal/ pelvic surgery for cancer and day surgery patients who are likely to have prolonged immobility on discharge. Thromboprophylaxis should continue until the patient is fully mobile or for the defined periods recommended by NICE for the patient groups described above NICE Clinical Guidelines 92.

Patients being discharged on extended thromboprophylaxis should have this documented in the discharge summary and the patient or their carer should be given verbal and offered written information on this (Patient information on discharge and Thromboprophylaxis). Patient information on discharge and Thromboprophylaxis.

4.9 All patients should be adequately hydrated unless there is a clinical reason not to do this. Patient should be mobilised as early as possible. Patients should be shown how to exercise their legs if they are on bed rest to prevent stasis developing in the deep veins in the leg.

4.10 Reassessment of a patient’s VTE risk and thromboprophylaxis regime should be undertaken within 24 hours of admission and whenever there is any significant change in the patient’s underlying condition/ treatment. This should be documented by opening the previous VTE assessment form on e-record and either documenting the change in bleeding or thrombotic risk or confirming no change. Changes in the clinical risk/benefit assessment that lead to alteration in the thromboprophylaxis regime should be documented in the clinical notes. Reassessment should ensure the methods of VTE prophylaxis being used are suitable and are being used correctly. If any adverse events resulting from VTE prophylaxis are identified these should be documented in the patient’s notes and reported to the directorate clinical governance / mortality and morbidity meeting.

5 Patient information

5.1 Written information of VTE prevention has been incorporated into the new Trust pre-operative information pack sent to all patients admitted for elective surgical procedures. Verbal information will be given to patients requiring emergency admission after risk assessment has been undertaken.

5.2 Patients/carers will be offered verbal and written information on VTE
prevention and the recognition of symptoms that should lead to further assessment for a VTE as part of the discharge processes. Patient information on discharge and Thromboprophylaxis

5.3 Patients discharged on extended thromboprophylaxis should be given verbal information on the intended duration and offered written information on potential side effects and symptoms that could represent a VTE and the need to report these. This information should be included in the discharge summary. Prophylactic treatment regime for high risk patients

5.4 Patients assessed to be at risk of VTE must be offered VTE prophylaxis. The Directorate specific guidelines on thromboprophylaxis identify specific procedure/ patient related factors that may influence the bleeding/ thrombotic risk should be referred to for specific prescribing information. The Directorate specific guidelines will be accessible through the intranet VTE site in addition to each Directorate’s guideline site. All Directorate specific guidelines must be submitted to the Trust Thrombosis Committee for approval and confirmation that they are compliant with advice in NICE clinical guideline 92.

5.5 In patients with renal impairment (eGFR<30ml/min) consider need for a dose reduction to low molecular weight heparin or use of unfractionated heparin.

5.6 Pre-operative LMWH should not be given to patients unless this has been specifically agreed with the admitting consultant.

5.7 Patients requiring anti-embolism stockings must have these fitted by a staff member who has completed training on measuring and fitting these. Each ward will nominate a staff member to attend an educational session and assessment and will then cascade the training to other ward staff. A register of this training will be maintained within the training department.

6 Procedure to be followed if VTE is suspected

6.1 Patients directly presenting to the emergency department with symptoms suggestive of a DVT or referred by their GP to the assessment unit for exclusion of a DVT will be assessed using the Trust outpatient pathway document

6.2 Patients presenting to the emergency department or assessment suite with symptoms suggestive of a pulmonary embolism will be assessed and managed following the guidance in NICE CG 144. Patients with a likely two level Wells PE score will be offered an immediate computed tomography pulmonary angiogram (CTPA) or an immediate interim parenteral dose of anticoagulant followed by a CTPA.

6.3 If a surgical or medical inpatient develops symptoms suggestive of a VTE investigation should be initiated following the trust investigation algorithm for suspected VTE by the team caring for the patient with the support of the on-call medical team.
6.4 For pregnant women and women postpartum presenting with symptoms of VTE investigations will be undertaken following the guidelines within the *Venous Thromboembolism and Pregnancy*.

7 Management of the patient once a positive diagnosis has been made

7.1 Patients with a confirmed DVT that are considered suitable for outpatient management will be commenced on therapeutic anticoagulation with an informed discussion on the oral and parenteral anticoagulant options [Patient information](#) on the treatment of VTE should be offered to the patient/carer. Patients with known or suspected cancer as a provoking factor for the VTE will be offered low molecular weight heparin (LMWH). Patient’s co-morbidities and regular medication will inform the choice of anticoagulants with advice available from the Thrombosis nurse specialists or Haematology SpR on-call. Patients who are initiated on warfarin must continue on LMWH for a minimum of 5 days and until the INR is therapeutic on a minimum of 2 successive days and require an INR monitoring visit arranging for day 3. [Guidelines on Warfarin](#). Patients should be offered an outpatient clinic review appointment with either the Thrombosis team or the attending physician at 12 weeks to review the duration of anticoagulation.

7.2 Patients confirmed to have a pulmonary embolus will be commenced on therapeutic anticoagulation with an informed discussion on the oral and parenteral anticoagulant options. Patients with known or suspected cancer as a provoking factor for the VTE will be offered low molecular weight heparin (LMWH). Patient’s co-morbidities and regular medication will inform the choice of anticoagulants with advice available from the Thrombosis nurse specialists or Haematology SpR on call. Patients who are initiated on warfarin must continue on LMWH for a minimum of 5 days and until the INR is therapeutic on a minimum of 2 successive days and require an INR monitoring visit arranging for day 3 [Guidelines on warfarin](#). Patients will be assessed for early discharge and outpatient management. Patients should be offered an outpatient clinic review appointment with either the Thrombosis team or the admitting Consultant at 12 weeks to review the duration of anticoagulation.

7.3 In-patients developing symptoms confirmed on further investigation to represent a VTE will be initiated on therapeutic anticoagulation with LMWH, a direct oral anticoagulant or warfarin according to their bleeding risk, patient co-morbidities and regular medication. Advice may be sought from the on-call Haematologist for advice on any management concerns. On discharge referral to the anticoagulation service for monitoring of warfarin for patients initiated on this [Guidelines on Warfarin](#). Patients should be offered an outpatient clinic review appointment with either the Thrombosis team or the admitting Consultant at 12 weeks to review the duration of anticoagulation.

8 Staff training

8.1 All clinical staff (medical and nursing) will complete the Breeze presentation on VTE prevention every 3 years. A record of the training will be maintained.
in their electronic training portfolio. Foundation doctors are all required to complete the BMJ e-module on anticoagulation and evidence of this is considered as mandatory for a successful ARCP outcome.

8.2 Staff involved in the assessment and fitting of anti-embolism stockings must have completed training on this. Each clinical ward will nominate a lead nurse who will attend a training session and cascade the training to other ward based staff. A register of training will be maintained by the training department.

9 Equality and diversity

The Trust is committed to ensuring that, as far as is reasonably practicable, the way we provide services to the public and the way we treat our staff reflects their individual needs and does not discriminate against individuals or groups on any grounds. This document has been appropriately assessed.

10 Monitoring

10.1 Monitoring of the completion of risk assessment of patients for VTE will be performed by the corporate information management and technology directorate after coding of patient episodes. The monthly figures are devolved to the individual directorates and the Chair of the Thrombosis Committee. Any Directorate not achieving 90% assessment of admissions will be provided with a further ward based breakdown of data to assist investigation of the problem and development of an action plan. Support with this will be available from the clinical informatics and clinical effectiveness team and thrombosis committee members. The implementation of appropriate thromboprophylaxis will be reviewed by point prevalence audits within each directorate every month.

10.2 All new VTE events diagnosed in the Trust are identified from review of diagnostic imaging reports. New VTE events developing during an in-patient admission will be reported on Datix by the ward nursing staff. Hospital acquired VTE (HAT; defined as a VTE occurring during a hospital admission >72 hours after admission or within 90 days of a hospital admission) are identified by reviewing the admission history within the preceeding 90 days of each patient. HAT require a root cause analysis to identify whether the thrombosis was avoidable and to identify any changes which may reduce the risk of VTE.

An investigation report will be sent for completion to all consultants involved in the care of the patient during the index admission or admissions in the preceeding 90 days. The completed form should be returned within 2 weeks to the chair of the thrombosis committee. If an area of thromboprophylaxis assessment or prescribing is identified to have contributed to the VTE an action plan with a timescale of implementation will be indicated on the form. HAT VTE events occurring during an inpatient admission will be reviewed in existing directorate morbidity and mortality / clinical governance meetings.
10.3 An annual report on VTE risk assessment and HAT will be submitted to the clinical risk group by the chair of the thrombosis committee. The thrombosis committee meets four monthly and will review the RCA reports of hospital acquired thrombosis and provide leadership in developing and implementing the VTE prevention and management guidelines as new evidence and national guidance emerges.

<table>
<thead>
<tr>
<th>Standard/process/issue</th>
<th>Monitoring and audit</th>
<th>By</th>
<th>Committee</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review of HAT and RCA</td>
<td></td>
<td>Chair of the Thrombosis Committee</td>
<td>Clinical Governance and Quality Committee</td>
<td>Two monthly</td>
</tr>
<tr>
<td>Implementation and development of action plans to reduce HAT and audit data on VTE prevention and management</td>
<td>Chair of the Thrombosis Committee</td>
<td></td>
<td>Thrombosis Committee</td>
<td>4 monthly</td>
</tr>
<tr>
<td>Compliance with service contract for VTE assessment and provision of Thromboprophylaxis</td>
<td>Directorate</td>
<td></td>
<td>Directorate clinical governance meeting</td>
<td>Monthly</td>
</tr>
<tr>
<td>Implementation of VTE prophylaxis and procedure for suspected VTE</td>
<td>Pharmacy/clinical effectivenee ss audit team</td>
<td></td>
<td>Thrombosis Committee</td>
<td>4 Monthly</td>
</tr>
</tbody>
</table>
PAEDIATRIC RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM (VTE)

(Tick all boxes that apply and file this assessment in patient’s notes)

- **Surgical patient Post-pubertal or Age > 13**
- **Medical patient Post-pubertal or Age > 13**
- **Surgical / Medical patient Pre-pubertal or Age < 13 with personal or family history of thrombosis**
- **Expected to have ongoing reduced mobility relative to normal state**
- **NOT expected to have significant reduced mobility relative to normal state or Pre-pubertal or Age < 13 with no personal or no family history of thrombosis**

Does the patient have one or more of the following thrombosis risk factors?

**Patient related**
- Central venous line in situ
- Active cancer or cancer treatment
- Dehydration
- Known thrombophilia
- Obesity (BMI>30kg/m²)
- One or more significant medical comorbidities (e.g. nephrotic syndrome, sickle cell disease, inflammatory bowel disease)
- Personal history or first degree relative with a history of VTE under age of 40 years
- Use of oestrogen containing contraceptives
- Pregnancy / < 6 weeks post partum

Is pharmacological thromboprophylaxis contraindicated?

**Patient related**
- Active bleeding
- Acquired bleeding disorder (e.g. acute liver failure)
- Use of anticoagulant (e.g. warfarin)
- Acute stroke
- Thrombocytopenia (platelets < 75 x 10⁹/l)
- Uncontrolled hypertension
- Inherited bleeding disorder (e.g. Haemophilia / von Willebrand disease)

**Admission related**
- Significantly reduced mobility for >3 days
- Major orthopaedic surgery
- Acute surgical admission with inflammatory or intra-abdominal condition
- Critical care admission
- Consider mechanical thromboprophylaxis, e.g. TED stockings

**Admission related**
- Neurosurgery, spinal surgery, eye surgery
- Other procedure with high bleeding risk
- Lumbar puncture / epidural / spinal anaesthesia within 4 hours

Discuss potential use of thromboprophylaxis with admission team and/or haematologist

RISK ASSESSMENT COMPLETE

Name: Surname:
Hospital No: NHS No:
DOB: Ward: Hospital:

Bleep / Ext:

Date:

Signature
This form must be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

PART 1

1. **Assessment Date:** 23 February 2018

2. **Name of policy / guidance / strategy / service development / Investment plan / Board Paper:**
   - VTE assessment and management

3. **Name and designation of author:**
   - Kate Talks, Consultant Haematologist

4. **Names & Designations of those involved in the impact analysis screening process:**
   - Clinical Risk Group

5. **Is this a:**
   - Policy
   - Revised

   **Who is affected:**
   - Service Users

6. **What are the main aims, objectives of the document you are reviewing and what are the intended outcomes?**
   
   (These can be cut and pasted from your policy)

   To outline the process used within the Trust for the VTE risk assessment of different patient groups using the e-record electronic assessment tool and the provision of appropriate Thromboprophylaxis for patients identified at increased risk. The objective is to reduce the number of patients developing VTE during their hospital stay and in the 90 days following discharge.

   The pathways for the investigation of both patients referred for the exclusion of VTE and existing in-patients with suspected VTE and the management of confirmed VTE are outlined with reference to specific Directorate and Trust guidelines for detailed.
7. Does this policy, strategy, or service have any equality implications? No

If No, state reasons and the information used to make this decision, please refer to paragraph 2.3 of the Equality Analysis Guidance before providing reasons:

All patients are treated equitably.

8. Summary of evidence related to protected characteristics

<table>
<thead>
<tr>
<th>Protected Characteristic</th>
<th>Evidence</th>
<th>Does evidence/engagement highlight areas of direct or indirect discrimination?</th>
<th>Are there any opportunities to advance equality of opportunity or foster good relations?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race / Ethnic origin (including gypsies and travellers)</td>
<td>Mandatory training</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>Sex (male/ female)</td>
<td>Mandatory training</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>Religion and Belief</td>
<td>Mandatory training</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>Sexual orientation including lesbian, gay and bisexual people</td>
<td>Mandatory training</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>Age</td>
<td>Mandatory training</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>Disability – learning difficulties, physical</td>
<td>Mandatory training</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>disability, sensory impairment and mental health. Consider the needs of carers in this section</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Gender Re-assignment</td>
<td>Mandatory training</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>Marriage and Civil Partnership</td>
<td>Mandatory training</td>
<td>None</td>
<td>No</td>
</tr>
<tr>
<td>Maternity / Pregnancy</td>
<td>Mandatory training</td>
<td>None</td>
<td>No</td>
</tr>
</tbody>
</table>

9. **Are there any gaps in the evidence outlined above? If ‘yes’ how will these be rectified?**

   No

10. **Engagement has taken place with people who have protected characteristics and will continue through the Equality Delivery System and the Equality Diversity and Human Rights Group. Please note you may require further engagement in respect of any significant changes to policies, new developments and or changes to service delivery. In such circumstances please contact the Equality and Diversity Lead or the Involvement and Equalities Officer.**

   Do you require further engagement  Yes  No

11. **Could the policy, strategy or service have a negative impact on human rights? (E.g. the right to respect for private and family life, the right to a fair hearing and the right to education?)**
PART 2

Name of author:
Kate Talks

Date of completion
23 February 2018

(If any reader of this procedural document identifies a potential discriminatory impact that has not been identified, please refer to the Policy Author identified above, together with any suggestions for action required to avoid/reduce the impact.)