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 >18 years 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 events, although can occur within specific high risk groups of patients related to specific 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 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 prescribing information.

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 which is to be completed using the e-record document. ([Link 1: 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 Paediatric assessment for children <18 at high risk should be performed using the Paediatric assessment tool. ([Link 2 Paed assessment tool](#)).

4.2 The risk will be assessed at the pre-operative assessment clinic or on admission for elective surgical patients. The assessment will be undertaken for emergency medical and surgical patient admissions by the admitting doctor prior to prescribing medication. 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.

4.3 Risk assessment will usually be undertaken by the junior doctor admitting the patient. Within surgical pre-admission clinics and antenatal clinics this may be delegated to a nurse / midwife working within their Directorate guidelines.

4.4 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 ([link to specific directorate VTE Thromboprophylaxis guidelines on Intranet page](#)).

4.5 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.
4.6 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. (Link 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. (Link 3 patient information on extended Thromboprophylaxis)

4.7 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.

4.8 Reassessment of a patient’s VTE risk and their 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. (Link 4: patient information leaflets signs and symptoms VTE).

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.
6. **Prophylactic treatment regime for high risk patients**

6.1 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.

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

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

6.4 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.

7. **Procedure to be followed if VTE is suspected**

7.1 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 (link 5 Assessment suite and emergency department DVT assessment form).

7.2 Patients presenting to the emergency department or assessment suite with symptoms suggestive of a pulmonary embolism will be investigated and assessed following the trust investigation for suspected PE.

7.3 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.

7.4 For pregnant women and women postpartum presenting with symptoms of VTE investigations will be undertaken following the guidelines within the Antenatal ward guidelines section 6.

8. **Management of the patient once a positive diagnosis has been made**

8.1 Patients with a confirmed DVT that are considered suitable for outpatient management will be commenced on therapeutic low molecular weight heparin (LMWH) and in the absence of any contraindications warfarin with INR monitoring arranged for day 3. (Link 6 Guidelines on the management of DVT)
as outpatient, Link 7 Tinzaparin prescribing guidelines, Link 8 Guidelines on the initiation of warfarin). Patients should be offered an outpatient clinic review appointment with either the Thrombosis team or the attending physician at 4-6 weeks.

8.2 Patients confirmed to have a pulmonary embolus will be commenced on therapeutic LMWH and commenced on warfarin (Link 7 Tinzaparin prescribing guidelines, Link 8 Guidelines on the initiation of warfarin). Patients will be assessed for early discharge and outpatient management. All patients should be referred to the Thrombosis team for outpatient clinic review unless the admitting Consultant physician team wishes to provide this at 4-6 weeks.

8.3 In-patients developing symptoms confirmed on further investigation to represent a VTE will be managed following the Trust therapeutic LMWH and warfarin guidance. Advice may be sought from the on-call Haematologist for advice on any management concerns. On discharge referral to the Thrombosis team for an outpatient clinic review should be made and referral to the anticoagulation service for monitoring of warfarin (Link 9 Trust referral form for anticoagulation monitoring).

9. Staff training

9.1 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.

9.2 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.

10. 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.

11. Monitoring

11.1 Monitoring of the completion of risk assessment of patients for VTE will be performed by the informatics 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.

11.2 All new VTE events diagnosed in hospital in-patients will be reported on Datix by the ward nursing staff. An alert of the incident will be sent to the anticoagulation nurse specialists and chair of the Thrombosis committee. Hospital acquired VTE (HAT; defined as a VTE occurring during a hospital admission or within 90 days of a hospital admission) require further root cause analysis to identify whether the thrombosis was avoidable and if so identify changes in practice with regard to VTE prevention.

An electronic investigation report will be sent for completion to the consultant clinician responsible for in-patient admission episode in which the VTE occurred. The completed form will be returned within 2 weeks and copies will be sent to the Chair of the Thrombosis committee and the appropriate clinical directorate representative on 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. All VTE events occurring during an inpatient admission (HAT) will be reviewed in existing directorate morbidity and mortality / clinical governance meetings.

11.3 Patients presenting with symptoms of acute VTE will have their admission history in the preceding 90 days reviewed by one of the anticoagulant nurse specialists when their referral to the thrombosis service, for either initiation of warfarin or outpatient clinic review, is received. If any hospital admissions are identified an investigation of the index admission prior to presentation will be undertaken by one of the anticoagulant nurse specialists and an electronic investigation report completed. The report will be sent to the Chair of the Thrombosis committee and the appropriate clinical directorate representative on the thrombosis committee. If the investigation report identifies a possible avoidable event the chair of the thrombosis committee will contact the consultant involved in the index admission for comment and identification of any action points and the timescale of implementation. The report will be returned to the Chair of the Thrombosis committee within 2 weeks.

11.4 A summary of HAT’s will be reported to the clinical governance and quality meeting 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.

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<tr>
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<td>Thrombosis</td>
<td>4 monthly</td>
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<td>Description</td>
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<tr>
<td>Development of action plans to reduce HAT and audit data on VTE prevention and management</td>
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