University Hospitals of Derby and Burton NHS Foundation Trust

TRUST POLICY FOR VENOUS THROMBO-EMBOLISIM (VTE) RISK ASSESSMENT AND THROMOBPROPYLAXIS POLICY

Reference Number:	Version	Date	Author	Reason
POL-CL/3726/21	1	December 2020	Dr Angela McKernan	New Policy
	3		Dr Charalampos Kartsios	Author updated

Intended Recipients: All clinical staff

Training and Dissemination:
Launch through Trust email circulation lists, Intranet and Face to Face training.

To be read in conjunction with:

- Records Management - Trust Policy and Procedure
- Medicines Management (Medicines Codes) - Trust Policy and Procedure
- Trust Obstetric guideline: Thromboprophylaxis during and up to 6 weeks after Pregnancy - Clinical Guidelines. Reference Number: OBS/T8 - MATERNITY (OBSTETRICS AND MIDWIFERY).

In consultation with and Date:

Trust Thrombosis Group, Divisional Management Teams

EIRA stage one: Completed

Stage two: Completed

Approving Body and Date Approved	Trust Delivery Group - January 2024
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Contact for Review	Dr Charalampos Kartsios Consultant
Executive Lead Signature	Executive Medical Director
Approving Executive Signature	 Dr Gis Robinson, Interim Executive Medical Director

CONTENTS

1. Objective of Policy

The objective of this Policy is to reduce the risk of Venous Thromboembolism (deep veinthrombosis and pulmonary embolism) in people admitted to hospital. (NICE clinical guideline NG89).

All adult admissions age 18 and over must be risk assessed as soon as possible after admission or by the time of the first consultant review.

Note:
Patients age 16 – 18 will not be routinely risk assessed unless pregnant. Individual risk assessments will be done if clinically indicated.

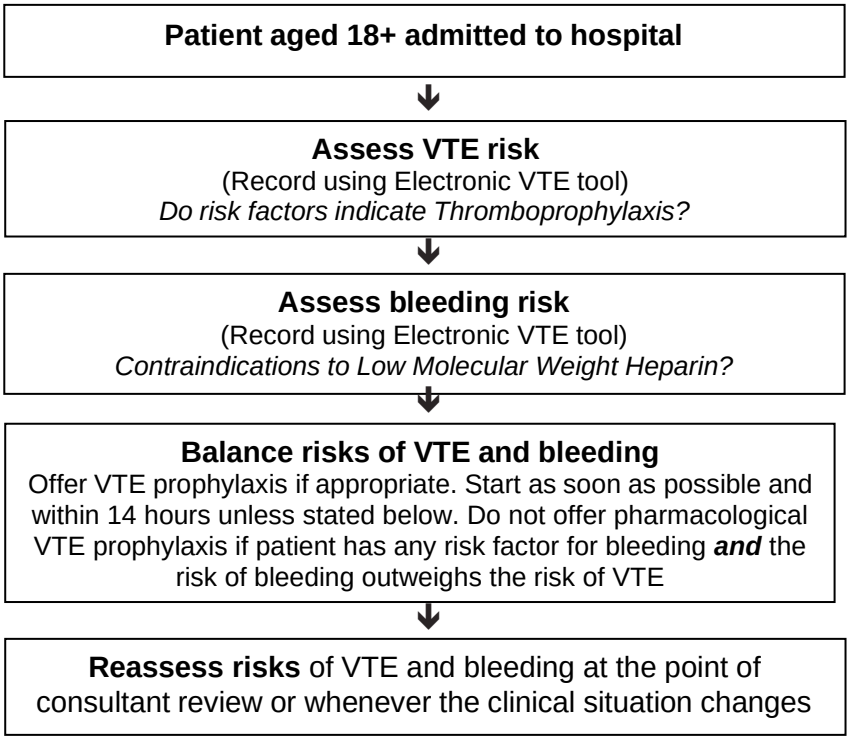
For Obstetric patients including those within 6 weeks of pregnancy (post partum, termination of pregnancy and miscarriage) see the Trust Obstetric guideline: Thromboprophylaxis during and up to 6 weeks after Pregnancy - Clinical Guidelines. Reference Number: OBS/T8 - MATERNITY (OBSTETRICS AND MIDWIFERY).

Day case patients who meet the 'cohort criteria' need not have an individual risk-assessment within 24 hours of their admission. Such patients are considered not to require individual risk assessment because the nature of their procedure and / or the short duration of their hospitalstay means they are low risk for thrombosis. However, should the condition of such a patient change or their stay lengthen, they will then require individual risk assessment.

All other patients should be risk assessed according to the risk assessment in Appendix 1 on which the electronic risk assessment tools are based. People who are pregnant or within 6 weeksof pregnancy should be risk assessed according to the Trust pregnancy risk assessment tool.

2. Venous Thromboembolism (VTE) Risk Assessment

It is the responsibility of all doctors to ensure that all inpatients are assessed for their risk of VTE and bleeding as soon as possible after admission or by the time of the first consultant review as follows:



General measures for all patients:

- Do not restrict patients' fluid intake unless clinically indicated
- Encourage patients to mobilise as soon as possible
- Aspirin and other anti-platelet agents do not offer adequate prophylaxis for VTE, except in some orthopaedic patients and patients with myeloma
- Written information about the risk of VTE should be made available.

VTE risk assessment must be recorded by a doctor using the Electronic assessment tool provided in Meditech (Burton Site) and Lorenzo (Derby site).

VTE risk assessment must be repeated if there are significant changes in risk factors, patient condition, or planned / undertaken procedure(s).

3. General Recommendations for Thromboprophylaxis

Thromboprophylaxis should be given for any patient at risk of VTE unless contraindicated.

VTE prophylaxis is not required in patients taking:

- Warfarin within therapeutic range (INR > 2 with regular INR checks)
- Direct oral anticoagulants (DOACS) – Apixaban, Dabigatran, Edoxaban and Rivaroxaban
- Enoxaparin
- Unfractionated heparin (UFH)
- Fondaparinux.

If anticoagulation is interrupted (or for those on warfarin with an INR less than 2) the need for VTE thromboprophylaxis should be assessed and prescribed as above.

VTE thromboprophylaxis is required in patients taking antiplatelet agents. These patients should be assessed as above.

For patients expected to receive spinal anaesthesia, please discuss the timings of anticoagulation (LMWH) with a Consultant Anaesthetist.

Thromboprophylaxis may be inappropriate in patients who are terminally ill.

Thromboprophylaxis should not be offered in the last days of life.

3.1. Standard Thrombophylaxis for Non-Pregnant Adult Inpatients

Low Molecular Weight Heparin (LMWH, Enoxaparin or Inhixa) is the anticoagulant of choice at the Trust. The standard dose is 40 mg once a day (subcutaneous). However, this can be adjusted for body weight and renal function as below. Administered at 1800 hrs everyday on most wards (08.00 option in Derby site Medical, Haematology and Oncology wards).

For some Derby site orthopaedic patients aspirin is the thromboprophylaxis of choice (see Appendix 4).

If Enoxaparin is contraindicated (e.g. heparin allergy), use Fondaparinux 2.5 mg once a day (subcutaneous).

Adjustment for body weight: The manufacturers do not suggest that dose adjustment is required for patients at extremes of body weight, but recent guidance suggests that you may wish to

consider adjusting the doses to allow for these extremes. This decision is at the discretion of the consultant responsible for the care of the patient, and further advice can be sought from your ward pharmacists.

Bodyweight	**Enoxaparin dose**
< 50 kg	20mg OD*
51 – 100 kg	40mg OD
101 – 150 kg	60mg OD* or 40mg BD*
>150 kg	80mg OD* or 60mg BD*

* Unlicensed doses

Renal failure (leading to accumulation, enhanced anticoagulant effect):

- Consider dose reduction if eCrCl (calculated by Cockcroft-Gault formula) indicates renal insufficiency
- eGFR < 30 ml/min - reduce the enoxaparin dose to 20 mg OD
- eGFR < 15 ml/min - discuss with Renal

Platelet thresholds:

- Thromboprophylaxis to be given only on consultant discretion if platelet count <75 $x10^9$/L
- Patients with cirrhosis of the liver may be given enoxaparin with platelet count ≥ 50 $x10^9$/L
- Covid 19 positive patients may be given enoxaparin with platelet count ≥ 30 $x10^9$/L.

Length of Treatment:

Thromboprophylaxis should usually be continued until discharge (or until patient mobility is no longer significantly reduced)[4]. See below for patients groups where extended thromboprophylaxis is recommended.

Extended thromboprophylaxis:

- Surgical patients:
  Patients who have undergone major cancer surgery of the abdomen or pelvis: consider LMWH for 28 days postoperatively

- Orthopaedic patients:
  Guidelines differ between sites. For Burton Site see Appenidix 3. For Derby Site see Appendix 4.

- Gynaecology patients:
  Patients who have undergone major cancer surgery of the abdomen or pelvis: consider VTE prophylaxis for 28 days postoperatively

- Patients with Cancer:

Pancreatic cancer. Patients with pancreatic cancer who are receiving chemotherapy should be considered for pharmacological prophylaxis with LMWH as outpatients. If thromboprophylaxis is commenced, this should be continued for the duration of chemotherapy treatment

Myeloma. Patients with multiple myeloma who are receiving chemotherapy with thalidomide, pomalidomide or lenalidomide with steroids should be considered for thromboprophylaxis. Aspirin, LMWH or a DOAC can be used. This should be continued for the duration of chemotherapy treatment.

Cautions with Enoxaparin:

- All patients must have a baseline platelet count before commencing any heparin. Routine monitoring is not necessary; however prescribers should be aware that LMWH can cause hyperkalaemia and Heparin Induced Thrombocytopenia. Monitoring of the platelet count is necessary in some circumstances (see Appendix 2).

Spinal / Epidural Anaesthesia:

- Spinal anaesthesia and placement or removal of an epidural catheter should be delayed for 12 hours after the administration of prophylactic Enoxaparin
- Patients receiving higher doses of Enoxaparin will require a delay of 24 hours, and extreme vigilance and frequent monitoring must be exercised due to higher risk of spinal haematoma
- The subsequent Enoxaparin dose should be given at least 4 hours after a spinal anaesthetic or the insertion or removal of an epidural catheter
- Patients with an epidural catheter will continue to receive Enoxaparin 40mg OD while the epidural is in-situ. Any of these patients over 100kg will need to increase the Enoxaparin dose as above once the epidural catheter has been safely removed
- If INR or APPT is greater than 1.5, then spinal or epidural anaesthesia should not be performed except in exceptional circumstances.

3.2 Mechanical measures

Knee-length anti-embolism stockings:

- All patients in surgery, gynaecology and orthopaedic wards – unless contraindicated (see below)
- Mechanical methods of prophylaxis have not to date been appropriately evaluated in acutely ill medical patients, and thus are not recommended at present. Knee-length anti-embolism stockings when used should be properly measured and fitted.

Contraindications to anti-embolism stockings:

- Suspected or proven peripheral arterial disease
- Peripheral arterial bypass grafting
- Peripheral neuropathy or other causes of sensory impairment
- Any local conditions in which stockings may cause damage, for example fragile ‘tissue paper’ skins, dermatitis, gangrene or recent skin graft
- Known allergy to material of manufacturer
  Severe leg oedema
- Unusual leg size or shape or major limb deformity preventing correct fit
- Acute stroke patients
- Use caution and clinical judgement when applying anti-embolism stockings over venous ulcers or wounds.

This list is not exhaustive and other contraindications exist.

Foot impulse devices (please refer to local guidelines and competencies for advice on usage of these devices).

Intermittent pneumatic compression devices (please refer to local guidelines and competencies for advice on usage of these devices).

Encourage mobilisation (when appropriate).

Do not allow patients to become dehydrated unless clinically indicated.

4. Discharge

All discharged patients who have anticoagulation prescribed should have Information relating to the indication, duration and dose of anticoagulation included in the discharge letter.

4.1. Discharge to Home

All adult patients MUST be provided with an appropriate patient information leaflet advising on the VTE risk which is verbally discussed prior to discharge.

It should be ensured that patients discharged with anti-embolism stockings understand the importance of wearing these stockings and how to wear them correctly. Daily removal for hygiene purposes and how to remove them and when to stop wearing them.

Patients being discharged on extended prophylaxis with enoxaparin will receive appropriate training for self-administration of the injections, or a referral for the district nurse to administer the drug.

They will also be supplied with an appropriate sharps box for disposal of the syringes.

All patients should be advised who / where to contact if there are any problems and information provided to the GP regarding any VTE prophylaxis supplied.

4.2. Transfer to Community Hospital, Step down or Intermediate care:

ALL patients should undergo VTE risk assessment and continue with prescribed low molecular weight heparin until risk factors resolved.

Where patients have been prescribed extended VTE prophylaxis as above, **it is essential** that on discharge this is continued for the required amount of time.

The doctor prescribing the drug is responsible for ensuring there is an accurate stop date on the prescription.

Patients requiring Rivaroxaban following elective hip or knee replacements should be issued with a relevant TTO pack prior to discharge to the community hospitals.

4.3. Transfer to Acute Hospital

Other acute hospitals should follow their own VTE risk assessment and Thromboprophylaxis policy for all admissions.

5. Procedure to follow if Venous Thromboembolism suspected.

NICE guideline NG158: Venous thromboembolic diseases: diagnosis, management and thrombophilia testing should be followed.

6. Staff training

All nursing, midwifery and medical staff new to the Trust are required to undertake training on the EPR system relevant to their role. Access to EPR is authorised once attendance at the training has been completed.

The EPR training includes a session on the use of the nursing assessment tools as relevant to role and to the risk assessments including VTE tools for all medical and nursing staff.

7. Clinical audit standards

There is a monthly audit of compliance as part of the Safety Thermometer of VTE Risk Assessment and Thromboprophylaxis. The data collected is reported via the Trust Patient Safety Group.

- All adult inpatients should be assessed for their risk of venous thromboembolism on admission to hospital
- Patients with risk factors for venous thromboembolism should receive an appropriate dose of Enoxaparin daily unless contraindicated
- Information is collated to monitor compliance with VTE risk assessment and this is reported into the Unify Database and also to the Clinical Commissioning Group (CCG).

8. References / Source Documents

1. NICE NG 89: Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism
2. What doses of thromboprophylaxis are appropriate for adult patients at extremes of body weight? Prepared by the HAT Committee of the UK Clinical Pharmacy Association for NHS healthcare professionals: Date Prepared: June 2015
3. SPC for Enoxaparin: http://www.medicines.org.uk/emc/medicine/24345 (accessed 7/9/16)
4. The National VTE Exemplar Centres Network response to implementation of updated NICE guidance: Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism (NG89)

9. Glossary

DVT	Deep vein thrombosis
FH	Family history
THR	Total hip replacement
TKR	Total knee replacement
VTE	Venous thromboembolism

APPENDIX 1 – RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM (VTE)

RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM (VTE)

All patients should be risk assessed on admission to hospital. Patients should be reassessed within 24 hours of admission and whenever the clinical situation changes.

STEP ONE

Assess all patients admitted to hospital for level of mobility (tick one box). All surgical patients, and all medical patients with significantly reduced mobility, should be considered for further risk assessment.

STEP TWO

Review the patient-related factors shown on the assessment sheet against **thrombosis** risk, ticking each box that applies (more than one box can be ticked).

Any tick for thrombosis risk should prompt thromboprophylaxis according to NICE guidance.

The risk factors identified are not exhaustive. Clinicians may consider additional risks in individual patients and offer thromboprophylaxis as appropriate.

STEP THREE

Review the patient-related factors shown against **bleeding risk** and tick each box that applies (more than one box can be ticked).

Any tick should prompt clinical staff to consider if bleeding risk is sufficient to preclude pharmacological intervention.

Guidance on thromboprophylaxis is available at:

National Institute for Health and Clinical Excellence (2010) Venous thromboembolism: reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. NICE clinical guideline 92. London: National Institute for Health and Clinical Excellence.

http://www.nice.org.uk/guidance/CG92

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RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM (VTE)

Mobility – all patients (tick one box)	**Tick**		**Tick**		**Tick**
Surgical patient		Medical patient expected to have ongoing reduced mobility relative to normal state		Medical patient NOT expected to have significantly reduced mobility relative to normal state	
Assess for thrombosis and bleeding risk below				**Risk assessment now complete**	

Thrombosis risk			
Patient related	**Tick**	**Admission related**	**Tick**
Active cancer or cancer treatment		Significantly reduced mobility for 3 days or more	
Age > 60		Hip or knee replacement	
Dehydration		Hip fracture	
Known thrombophilias		Total anaesthetic + surgical time > 90 minutes	
Obesity (BMI >30 kg/m^2)		Surgery involving pelvis or lower limb with a total anaesthetic + surgical time > 60 minutes	
One or more significant medical comorbidities (eg heart disease;metabolic,endocrine or respiratory pathologies;acute infectious diseases; inflammatory conditions)		Acute surgical admission with inflammatory or intra-abdominal condition	
Personal history or first-degree relative with a history of VTE		Critical care admission	
Use of hormone replacement therapy		Surgery with significant reduction in mobility	
Use of oestrogen-containing contraceptive therapy			
Varicose veins with phlebitis			
Pregnancy or < 6 weeks post partum (see NICE guidance for specific risk factors)			

Bleeding risk			
Patient related	**Tick**	**Admission related**	**Tick**
Active bleeding		Neurosurgery, spinal surgery or eye surgery	
Acquired bleeding disorders (such as acute liver failure)		Other procedure with high bleeding risk	
Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with INR >2)		Lumbar puncture/epidural/spinal anaesthesia expected within the next 12 hours	
Acute stroke		Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours	
Thrombocytopaenia (platelets< 75x10^9/l)			
Uncontrolled systolic hypertension (230/120 mmHg or higher)			
Untreated inherited bleeding disorders (such as haemophilia and von Willebrand's disease)			

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APPENDIX 2

Early detection of Heparin-Induced Thrombocytopenia (HIT)

Early recognition of HIT is important because of the potentially serious thrombotic complications that may occur. Thrombotic complications usually occur after the fall in platelet count has occurred, but may precede recognition of a falling platelet count in up to 25% of cases.

HIT screening is NOT indicated for those patients treated solely by *Rivaroxaban, Dabigatran, Apixaban, Edoxaban or Fondaparinux*

- Patients who are to receive any heparin should have a baseline platelet count).
- Post-operative patients including obstetric cases receiving unfractionated heparin (UFH) should have platelet count monitoring performed every 2–3 d from days 4 to14 or until heparin is stopped.
- Post-cardiopulmonary bypass patients receiving low molecular weight heparin (LMWH) should have platelet count monitoring performed every 2–3 d from days 4 to 14 or until heparin is stopped.
- Post-operative patients (other than cardiopulmonary bypass patients) receiving LMWH do not need routine platelet monitoring.
- Post-operative patients and cardiopulmonary bypass patients who have been exposed to heparin in the previous 100 days and are receiving any type of heparin should have a platelet count determined 24 h after starting heparin.
- Medical patients and obstetric patients receiving LMWH do not need routine platelet monitoring.
- If the platelet count falls by 30% or more, and/or the patient develops new thrombosis or skin allergy or any of the other rarer manifestations of heparin-induced thrombocytopenia (HIT) between days 4 and 14 of heparin administration, HIT should be considered and an urgent clinical assessment made.
- HIT can be excluded by a low pre-test probability score without the need for laboratory investigation. If the pre-test probability of HIT is not low, heparin should be stopped and an alternative anticoagulant started in full dosage whilst laboratory tests are performed(1C).

APPENDIX 3

VTE Prophylaxis – Orthopaedic - Full Clinical Guideline

1. Introduction

Symptomatic venous thromboembolism (VTE) is uncommon in Trauma & Orthopaedic practice, but has potentially devastating consequences. In many patients, the risk of VTE is determined as much by personal risk factors as their diagnosis or operation. Chemical prophylaxis against VTE is only one aspect of a comprehensive VTE-reduction strategy. Even with best practice it is not possible to reduce the risk of VTE to zero, as there is background risk of VTE in the general population. Evidence of benefit from chemical prophylaxis is uncertain for some subgroups of patients, and this must be weighed against the potential for adverse outcomes due to haemorrhage or prolonged wound ooze.

2. Aim and purpose of this guideline

The purpose of this guideline is to recommend a consistent approach to VTE risk assessment and prophylaxis in Trauma & Orthopaedic Surgery, based where possible on published evidence and local / national guidance. However, there are many areas where good quality evidence is not available.

3. Definitions / abbreviations

DVT	Deep vein thrombosis
PE	Pulmonary Embolism
VTE	Venous thromboembolism
T&O	Trauma and Orthopaedic
OCP	Oral Contraceptive Pill
HRT	Hormone Replacement Therapy
EPR	Electronic Patient Record
THR	Total Hip Replacement
TKR	Total Knee Replacement
LMWH	Low Molecular Weight Heparin
eGFR	Estimated Glomerular Filtration Rate

4. Main guidance

a) Risk assessment

All patients must have a risk assessment as per hospital guidelines, documented on Lorenzo and discussed at the 'WHO' moment before surgery.

Personal factors indicating increased risk of VTE include:

- **Personal or first-degree relative history of VTE**
- **Known thrombophilia – eg Factor V Leiden, Protein C or S deficiency, Antithrombin III deficiency**
- **Active cancer** or history of non-cutaneous malignancy
- Pulmonary hypertension
- Obesity
- Pregnancy or recent post-partum
- On OCP (excluding progesterone-only pill) or HRT (excluding oestrogen cream / pessaries)

The factors shown above in **bold** are particularly important to consider.

Injury / treatment factors indicating increased risk of VTE that apply to T&O include:

- Major trauma (but also associated with increased bleeding risk)
- Pelvic fractures and pelvic surgery
- Prolonged non-weight bearing
- Achilles tendon ruptures
- General rather than spinal / regional anaesthesia

There should also be an assessment of the risk and potential consequences of bleeding caused by the injury or surgery.

b) Shared decision-making

Decisions about VTE prophylaxis should be:

- Individualised for each patient
- Informed by the risk assessments above
- Based on discussions with the patient
- Documented in the EPR and / or case notes (handwriting it on the surgical consent form is good practice)

c) Mechanical prophylaxis

Early, weight-bearing mobilisation should be the norm, unless contra-indicated by the injury or treatment. Prolonged non weight-bearing also leads to loss of limb function and increases social dependence.

All but minor local anaesthetic surgical cases should have Flowtron® calf compression garments in the operating theatre.

For lower limb surgical procedures with an overnight stay, the patient should have AV Impulse® boots until mobile.

d) Chemical prophylaxis

When to start treatment
Patients admitted to hospital should begin chemical thromboprophylaxis on the day of admission unless it is within 12 hours of their surgery, eg a hip fracture patient who will be operated on the trauma list at 8am the next day should get their first dose of Enoxaparin before 8pm. This should be prescribed as a 'stat' dose if it is after the 6pm drug round.

Duration of treatment
The length of time it takes an individual's risk to return to baseline probably varies, depending on individual factors and the nature of their injury or treatment. In general however, this length of time should be borne in mind when deciding the duration of chemical prophylaxis.

Prescribe the whole course
Patients requiring extended VTE prophylaxis after discharge from the hospital should be prescribed and dispensed the whole course. This ensures they receive the correct duration of treatment without relying on getting a repeat prescription.

Patients already on anticoagulants
In general patients should go back on to their usual anticoagulant regime as soon as it is safe to do so. There are separate Trust guidelines for managing anticoagulants peri-operatively on the intranet:

- Warfarin: https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-detail.pl?biblionumber=1163&query_desc=kw%2Cwrdl%3A%20haematology
- Apixaban: https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-detail.pl?biblionumber=1265&query_desc=kw%2Cwrdl%3A%20apixaban
- Rivaroxaban: https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-detail.pl?biblionumber=1268&query_desc=kw%2Cwrdl%3A%20rivaroxaban
- Dabigatran: https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-detail.pl?biblionumber=1267&query_desc=kw%2Cwrdl%3A%20Dabigatran

Specific chemical agents

- **Aspirin 150mg once daily** – predominantly antiplatelet action. Reduces symptomatic VTE in hip fracture patients and gives lowest all-cause mortality in THR patients. Lower risk of adverse bleeding.
- **Enoxaparin 40mg once daily** – low molecular weight heparin (LMWH). More potent anticoagulant than Aspirin but with greater bleeding risk.
  - In patients who weigh < 50kg or > 100kg a weight-adjusted dose **can be considered** after weighing up the risks of bleeding and wound problems against the risk of clots. Weight-adjusted doses are off-licence and the reason for the altered dose should be recorded.
  - In patients with impaired renal function (eGFR < 30 ml/min), reduce the enoxaparin dose to 20 mg once daily. Patients with severely impaired renal function (eGFR <15ml/min) should be discussed with haematology and / or renal teams.
- **Apixaban 2.5mg twice daily –** Factor Xa inhibitor. Equivalent potency to Enoxaparin 40mg once daily, no need for weight-adjusted dosing or monitoring, same or fewer adverse bleeding events. Possibly greater compliance post-discharge as no need to self-inject.

Further details on specific agents in the Trust's VTE guidelines:

https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-detail.pl?biblionumber=3726&query_desc=kw%2Cwrdl%3A%20thromboprophylaxis

e) Suggested regimes for common procedures

Total hip and knee arthroplasty

- **Standard risk patients –** AV boots, mobilisation full weight-bearing day 0/1, Aspirin 150mg daily post-operatively. Minimum 4 weeks in total.
- **Higher risk patients –** AV boots, mobilisation full weight-bearing day 0/1, LMWH or Apixaban post-operatively. Minimum 4 weeks in total.

Hip fracture surgery

- **Standard risk patients -** AV boots, mobilisation full weight-bearing day 0/1, LMWH post-operatively until discharge, convert to Aspirin 150mg daily if mobile on discharge. Minimum 4 weeks in total.
- **Higher risk patients -** AV boots, mobilisation full weight-bearing day 0/1, LMWH post-operatively, convert to Apixaban on discharge if giving injections may be difficult. Minimum 4 weeks in total.

Other lower limb elective and trauma surgery > 45 minutes or with reduced weight-bearing post-operatively

- **Standard risk patients –** LMWH post-operatively until discharge, convert to Aspirin 150mg daily on discharge.
- **Higher risk patients –** LMWH or Apixaban post-operatively. Minimum 4 weeks total.

Lower limb elective and trauma surgery < 45 minutes with full weight-bearing post-operatively

- **Standard risk patients –** early mobilisation, no chemical prophylaxis
- **Higher risk patients –** early mobilisation plus LMWH or Apixaban. Minimum 4 weeks in total.

Achilles tendon ruptures (treated surgically or non-surgically)
Higher risk group of patients, probably due to defunctioning of the calf muscle pump in equinus cast. See BOFAS website:
https://www.bofas.org.uk/News/News-Details/ArticleId/1/Current-BOFAS-position-statement-on-VTE-prophylaxis-in-foot-and-ankle-surgery

- **Standard risk patients –** Aspirin 150mg daily for 6 weeks.
- **Higher risk patients –** LMWH or Apixaban until weight-bearing in walker boot. Minimum 4 weeks.

Spinal surgery

- **Early mobilisation anticipated –** No chemical prophylaxis as risks outweigh benefits.
- **Delayed mobilisation –** Individual risk assessment but consider LMWH after 24 hours.

Upper limb surgery
As per BSSH guidelines :
https://www.bssh.ac.uk/professionals/vte_guidelines.aspx

Risk	Example	Recommendation
Low	LA, regional anaesthesia or <90 minutes GA	No prophylaxis
Moderate	>90 minutes GA (including elbow arthroplasty) and/or 1 risk factor	Mechanical prophylaxis until mobile
High	>90 minutes GA and >1 risk factor, prolonged post-operative immobility or tumour surgery	Mechanical prophylaxis and consider pharmacological prophylaxis until mobile

Paediatric orthopaedic surgery

- No chemical prophylaxis unless patient is identified as particularly high risk.

Patients in lower limb casts

- There is no evidence on the use of chemical prophylaxis in this group. Patients should be risk assessed on an individual basis.

5. Documentation controls

Development of guideline:	Mr Steve Milner (Consultant T&O)
Consultation with:	Jim Hutchinson (ACD T&O), Angela McKernan (Consultant Haematologist), Lydia Atia (Senior T&O pharmacist)
Approved by:	
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Key contact:	
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