Nottingham University Hospitals NHS
NHS Trust

Quick Guide to Extended Thromboprophylaxis in Surgical Patients

Full Title of Guideline:	3329 Guideline for the management of Extended Thromboprophylaxis in Surgical Patients
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Division & Speciality:	Cancer and Associated Specialities (CAS) Clinical Haematology
Scope *(Target audience, state if Trust wide):*	Trust wide
Review date *(when this version goes out of date):*	September 2026
Explicit definition of patient group to which it applies	Adult patients undergoing surgical procedures within NUH
Changes from previous version	Version 3 *Updated March 2024*
Summary of evidence base this guideline has been created from:	NICE guideline 89 (2018) nice.org.uk/guidance/ng89; Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism https://www.nice.org.uk/guidance/ng89/chapter/Recommendations
This guideline has been registered with the trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt, contact a senior colleague or expert. Caution is advised when using guidelines after the review date or outside of the Trust.	

NUH Quick Guide to Extended Thromboprophylaxis in Surgical Patients

- All patients admitted under surgery or with major trauma should have a nervecentre VTE risk assessment completed within 24 hours of admission
    - If the risk of VTE is higher than the risk of bleeding, pharmacological thromboprophylaxis is indicated
    - VTE risk assessment should be repeated if the clinical condition of the patient changes
- Patients with a previous personal history of VTE should be offered pharmacological thromboprophylaxis unless contraindicated
- For most patients, pharmacological thromboprophylaxis is with enoxaparin
    - If enoxaparin is contraindicated, other low molecular weight heparins are available
    - Aspirin is an option for some specific patient groups (see advice in table 1) but should not be used in patients at high risk for VTE and specific patient groups (documented in appendix 3)
- Pharmacological thromboprophylaxis should be dosed based on weight and renal function
    - The nerve centre VTE risk assessment gives advice on dosing
    - Further information on the dosing of enoxaparin can be found here http://nuhnet/nuh_documents/Guidelines/Cancer%20and%20Associated%20Specialties/Clinical%20Haematology/2248.pdf
- Patients should be prescribed the full course of extended thromboprophylaxis on their TTOs

Patients who are already prescribed oral anticoagulants (including warfarin, acenocoumarol, apixaban, rivaroxaban, dabigatran or edoxaban) do not need additional enoxaparin thromboprophylaxis if they continue to take these medications.

See also perioperative anticoagulation guidelines for patients taking oral anticoagulation

http://nuhnet/nuh_documents/Guidelines/Cancer%20and%20Associated%20Specialties/Clinical%20Haematology/2782.pdf

http://nuhnet/nuh_documents/Guidelines/Cancer%20and%20Associated%20Specialties/Clinical%20Haematology/2854.pdf

If there is a contraindication to pharmacological prophylaxis, this should be documented in the notes. Please consider whether mechanical thromboprophylaxis can be used as an alternative in these patients

- Extended pharmacological thromboprophylaxis is not routinely recommended for patients undergoing a surgical procedure with local anaesthesia with no limitation of mobility
    - Mobility is assessed relative to the normal or anticipated best mobility of the patient
- For all other patients, if the risk of VTE is higher than the risk of bleeding at discharge, extended thromboprophylaxis should be considered as shown in table 1
    - Duration of extended thromboprophylaxis should from the day of operation and include days spent as an inpatient and should be at the same dose/regime as during admission
- NUH deviated from published NICE guidelines in 2 surgical areas; vascular surgery and ENT surgery (see appendix 1)
    - Annual audit is undertaken to assess VTE rates in these patient groups

Table 1: Recommendations for extended pharmacological prophylaxis

Patient group	Recommendations for extended pharmacological thromboprophylaxis
All patients should have an electronic VTE risk assessment completed on nervecentre	
Lower limb immobilisation	Consider enoxaparin prophylaxis for 42 days
Fragility fractures of pelvis, hip and proximal femur	Offer enoxaparin prophylaxis for 28 days
Elective hip replacement	Offer extended prophylaxis with Enoxaparin for 28 days ***Dosing of enoxaparin in this patient group is shown in appendix 2**
Elective knee replacement	Offer extended prophylaxis with Aspirin • BMI <30 = Aspirin 75mg OD • BMI >30 = Aspirin 150mg OD ****Aspirin should <u>not</u> be used in certain patient groups (see appendix 3)**
Non arthroplasty knee surgery	Extended prophylaxis is generally not needed for people undergoing arthroscopic knee surgery if: • Total anaesthesia time is less than 90minutes and • The patient is at low risk of VTE Consider enoxaparin prophylaxis for 14 days for all other knee surgery
Foot and ankle orthopaedic surgery	Consider enoxaparin prophylaxis for 42 days if the operation • Requires immobilisation • When total anaesthesia time is more than 90 minutes
Lower limb amputation	Consider enoxaparin prophylaxis for a minimum of 7 days

Upper limb orthopaedic surgery	Extended prophylaxis is generally not indicated if giving local or regional anaesthetic for upper limb surgery. Consider enoxaparin prophylaxis for 7 days if – Total anaesthesia time is > 90 minutes or – The operation makes it difficult for them to mobilise
Spinal surgery Spinal injury Cranial surgery	**In view of the risks of bleeding in these patient groups, enoxaparin prophylaxis should only be started following discussion with the surgical team** If enoxaparin prophylaxis is used, continue for 30 days or until the patient is mobile or discharged, whichever is sooner
Major Trauma	**The risk of VTE and bleeding in people with serious or major trauma should be assessed whenever their clinical condition changes and at least daily** If enoxaparin prophylaxis is used, continue for a minimum of 7 days. Consider extended thromboprophylaxis to 42 days if there is ongoing lower limb immobility
Thoracic surgery	Enoxaparin prophylaxis should be • Stopped on discharge for minor procedures • For major procedures or pneumonectomy, duration should be based on the Caprini risk score (see thoracic surgery policy for scoring)
Abdominal surgery (including GI, gynaecology) Bariatric surgery	Offer enoxaparin prophylaxis for a minimum of 7 days Consider extended enoxaparin prophylaxis for 28 days following major cancer surgery in the abdomen Consider extended enoxaparin prophylaxis for 28 days following bowel resection for inflammatory bowel disease
Urology	Do not prescribe enoxaparin following TURBT or TURP; use mechanical thromboprophylaxis until discharge, unless contraindicated. Seek advice for patients at high risk of thrombosis. All other patients, consider enoxaparin prophylaxis for minimum of 7 days Consider extending enoxaparin prophylaxis to 28 days following major cancer surgery
Cardiac surgery	Consider enoxaparin prophylaxis for a minimum of 7 days **If the patient is prescribed therapeutic anticoagulation, additional pharmacological prophylaxis is not indicated**

Appendix 1: Deviations from NICE guidelines (2018)

1.5.49 – 1.5.50, 1.5.55	Consider pharmacological VTE prophylaxis with LMWH for a minimum of 7 days for people who are undergoing open vascular surgery or major endovascular procedures, including endovascular aneurysm repair whose risk of VTE outweighs their risk of bleeding Consider pharmacological VTE prophylaxis with LMWH, starting 6–12 hours after surgery and continuing for 7 days for people undergoing varicose vein surgery if: total anaesthesia time is more than 90 minutes or the person's risk of VTE outweighs their risk of bleeding.
1.5.60	Consider pharmacological VTE prophylaxis with LMWH for a minimum of 7 days for people undergoing ears, nose and throat (ENT) surgery whose risk of VTE outweighs their risk of bleeding

*Appendix 2: Dosing of Enoxaparin thromboprophylaxis for patients undergoing elective Hip and Knee replacement

In view of concern about the risk of wound haematoma increasing with the weight adjusted dosing of Enoxaparin which has been adopted for thromboprophylaxis across NUH, it has been agreed that the below dosing can be used in patients undergoing arthroplasty (as there is no evidence to demonstrate the efficacy and safety of weight adjusted dosing in this particular context. The below dosing reflects what was used in the clinical trials assessing thromboprophylaxis following TKR and THR).

Renal function	Weight		
	<50kg	50-150kg	>150kg
CrCl ≥30ml/min	20mg OD	40mg OD	40mg BD
CrCl 15-30ml/mir	20mg OD	20mg OD	40mg OD
CrCl <15ml/min	20mg OD*		

*This is considered generally safe in this patient group, but consider seeking senior/specialist advice if used for prolonged periods and/or the patient is at extremes of weight (anti-Xa monitoring can be considered)

Please see NUH Guideline for Thromboprophylaxis in Patients undergoing Hip or Knee Arthroplasty under Elective Orthopaedics for further information opac-retrieve-file.pl (koha-ptfs.co.uk)

When completing the VTE risk assessment for Nervecentre, you must select Enoxaparin on the final screen and specify dose prescribed in the 'comments/rationale for decisions' box.

**Appendix 3: HIGH risk groups

Patients in these groups are deemed to be higher risk for VTE. Aspirin should not be used for VTE thromboprophylaxis in these patient groups

- Previous personal history of VTE
- First degree family members with VTE
- Active cancer/chemotherapy or hormone therapy
- Oral contraceptives or hormone replacement therapy
- Known thrombophilia/hypercoagulable state
- Sickle cell disease
- Undergoing bilateral hip or knee replacement
- Hip/lower limb fracture or orthopaedic surgery in last 3 months
- Obesity (BMI >40)
- Previous GI bleed/gastric ulceration/GORD
- Gastric bypass
- Allergy or other contraindication to aspirin
- If the patient is already taking an antiplatelet agent use enoxaparin as thromboprophylaxis

Some patients who are suitable for Aspirin, ought to receive gastro-protection alongside this (see NUH Guideline for Initiation of Gastroprotection in patients prescribed Antithrombotic agents, http://nuhnet/nuh_documents/Guidelines/Cancer%20and%20Associated%20Specialties/Cardiology/3288.pdf).

Patients who require thromboprophylaxis but are unsuitable for aspirin should be prescribed enoxaparin as an alternative, as long as there are no contraindications to this medication.