

Prevention and prophylaxis for venous thromboembolism (VTE) in adult patients Procedure

VTE PROCEDURE

CATEGORY:	Procedure
CLASSIFICATION:	VTE
PURPOSE:	<p>Ensure patient safety is optimised resulting in the best outcomes.</p> <p>The purpose of this procedure is to ensure trust compliance to NICE Clinical Guideline 92 and Department of Health Regulations</p>
Version Number:	3.0
Sponsor:	Neil Smith, VTE Lead
Approved By:	Thrombosis & Anticoagulation Group
On:	April 2017
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Distribution:	All staff involved in treatment of patients
<ul style="list-style-type: none"> • Essential Reading for: • Information for: 	

Key Features:

- Based on NICE Clinical Guideline 92 published January 2010
- Risk Assessment Tool based on DOH risk assessment tool published March 2010
- Recommended Pharmacological and mechanical devices
- Responsibilities of individuals in assessing and prescribing to reduce DVT risk

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1 Introduction

An estimated 25,000 people in the UK die from preventable hospital-acquired venous thromboembolism (VTE) every year¹. Treatment of non-fatal symptomatic VTE and related long-term morbidities is associated with considerable cost to the health service and an adverse impact on quality of life.

VTE is a condition in which a blood clot (a thrombus) forms in a vein. It most commonly occurs in the deep veins of the legs; this is called deep vein thrombosis. The thrombus may dislodge from its site of origin to travel in the blood – a phenomenon called embolism.

VTE encompasses a range of clinical presentations. Venous thrombosis is often asymptomatic; less frequently it causes pain and swelling in the leg. Part or all of the thrombus can come free and travel to the lung as a potentially fatal pulmonary embolism.

Symptomatic venous thrombosis carries a considerable burden of morbidity, sometimes over a long term because of chronic venous insufficiency. This in turn can cause venous ulceration and development of a post-thrombotic limb (characterised by chronic pain, swelling and skin changes).

The risk of developing VTE depends on the condition and/or procedure for which the patient is admitted and on any predisposing risk factors (such as age, obesity and concomitant conditions).

2 Circulation

This policy applies to all staff with clinical responsibility for VTE risk assessment, prevention and treatment, whether in a permanent or temporary role on behalf of HEFT

3 Scope

3.1 Includes

This policy applies to all adult patients requiring hospitalisation including day case patients

3.2 Patient exclusions

There is an agreed cohort which also includes:

- Paediatric patients
- Out Patients
- Patients having endoscopy and procedures on cohort exemption list
- Patients not admitted to hospital
- Patients admitted for treatment of VTE

4 Reason for development

Heart of England NHS Foundation Trust (HEFT) has a statutory obligation to patients to ensure compliance to NICE guidelines. The Trust makes patient safety a top priority.

The purpose of this procedure is to provide clear guidance to staff on VTE risk assessment and prophylaxis for patients and to ensure compliance with NICE Clinical Guideline 92 and Department of Health regulations.

NICE recommends that patients should be assessed to identify their risk factors for developing VTE.

VTE risk assessment is a mandatory CQUIN in the 2010/11 payment framework.

5 Aims and objectives

- To identify all patients who may be at risk of developing a VTE
- To implement interventions to reduce the risk of a VTE occurring during in-patient stay or treatment that increases risks.
- To ensure a risk assessment is completed on admission of a patient to hospital and again after seventy two hours (after initial assessment). Thereafter, assessment will be as appropriate and depending on significant changes to medical condition.
- To make explicit that prophylaxis **must not** be prescribed unless a **valid and up to date VTE risk assessment is present**
- Healthcare professionals will give patients verbal and/or written information about the risks of VTE and the effectiveness of prophylaxis.
- To ensure VTE prophylaxis is documented in patients' notes/care record in a standardised manner using a systematic approach across the Trust.

Information for patient is available on the Trust Patient and Information Database

6 Definitions and abbreviations

6.1 Venous Thromboembolism (VTE)

The formation of a blood clot (thrombus) in a vein which may dislodge from its site of origin to cause an embolism

6.2 VTE prophylaxis

The active mechanism in reducing the risk of a VTE from occurring.

- Mechanical thromboprophylaxis devices include graduated compression stockings, intermittent pneumatic compression and venous foot pumps. All increase venous outflow or reduce stasis within the leg veins.
- Chemical thromboprophylaxis is pharmaceutical intervention to decrease the clotting ability of the blood. Drugs will be prescribed in accordance with current version of hospital formulary.

6.3 Major bleeding

A bleeding event that results in one or more of the following;

- Death
- A decrease in haemoglobin concentration of ≥ 2 g/dl
- Transfusion of ≥ 2 units of blood
- Bleeding into a retroperitoneal, intracranial or intraocular site
- A serious or life threatening clinical event

6.4 Renal failure

- An estimated glomerular filtration rate (eGFR) < 30 ml/min/1.73 m²

6.5 Significantly reduced mobility

Bedbound, unable to walk unaided or likely to spend a substantial proportion of the day
In bed or in a chair

6.6 Abbreviations

BMI: body mass index	INR: international normalised ratio (standardised laboratory measure of blood coagulation)
Dabigatran: dabigatran etexilate	LMWH: low molecular weight heparin
DVT: deep vein thrombosis	PE: pulmonary embolism
Fondaparinux: fondaparinux sodium	UFH: unfractionated heparin
HRT: hormone replacement therapy	VTE: venous thromboembolism

N.B. The drugs listed may not be included in the hospital formulary and the clinician must be guided by best practice, clinical judgement and advice from a hospital pharmacy if required.

7 Policy Standards

[Please read this document](#)

In Summary:

	Quality statements
1	All patients, receive an assessment of VTE and bleeding risk (Appendix 1), within 24 hrs of admission, using the clinical risk assessment criteria described in Appendix 2
2	Patients are re-assessed 72 hours after initial assessment for risk of VTE and bleeding.
3	Patients provided with anti-embolism stockings have them fitted and monitored in accordance with NICE guidance (Appendix 4)
4	Patients/carers are offered verbal and written information on VTE prevention as part of the admission process (See Trust Patient Advice and Information Database).

5	Patients assessed to be at risk of VTE are offered VTE prophylaxis in accordance with NICE guidance. (Appendices 3-5)
6	Patients/carers are offered verbal and written information on VTE prevention as part of the discharge process.
7	Patients are offered extended (post hospital) VTE prophylaxis in accordance with <u>NICE guidance</u> .
8	Clinical guidelines for the management of DVT and PE when a positive diagnosis has been made are available on the Trust clinical guidelines SharePoint.

8 Responsibilities

8.1 Chief Executive

The Chief Executive retains overall accountability for policies within the trust. Operational responsibility for this policy is delegated to the Trust Medical Director and Divisional Directors.

8.2 Trust Medical Director

The Medical Director for the Trust is accountable for Trust implementation of this policy and delegates responsibility to the Divisional Directors.

8.3 Divisional Directors

Divisional Directors are accountable for the implementation of this policy within their group. They delegate responsibility for the implementation to the clinical directors.

8.4 Clinical Director

All clinical directors are accountable for the implementation of this policy within their directorates.

Consultants are responsible for ensuring that all junior doctors on their team have clear expectation clarity with regard to VTE Risk assessment and VTE prophylaxis
That any training needs identified are actioned.

8.5 Admitting Consultant

The admitting consultant is responsible for ensuring compliance with this policy for their patients.

8.6 Junior Doctors

- Junior doctors are accountable and responsible for risk assessing patients admitted into hospitals and undertake review.
- Medical staff are responsible for documenting reasons for deviation from the recommended VTE prophylaxis stated in the risk assessment and guidance provided in this policy.

- Ward/Departmental Managers must ensure that nurses receive appropriate training and education in order to deliver on their responsibilities and accountabilities
- Training records are maintained locally

8.7 Nurses

The pre-assessment nurses are responsible for risk assessing all elective surgical patients, attending the pre-operative assessment clinic.

The doctor will be responsible for prescribing relevant prophylaxis where applicable.

Nurses have a responsibility and are accountable for promoting patient safety and are responsible for monitoring the presence of a valid VTE risk assessment.

8.8 Board and Group Responsibilities

8.8.1 Ratifying Board and Group Responsibilities

- This policy will be approved at the Clinical Standards Committee meeting following trust wide consultation
- This policy will be ratified by Clinical Standards Committee
- The author will have responsibility for the development and review of this policy.

8.8.2 Trust Board Responsibilities

The trust board has overall accountability and responsibility for ensuring there are safe systems of practice in place to enable the effective delivery of patient care.

8.8.3 Executive Committee Responsibilities

The executive committee has the responsibility to ensure that Trust policies support operational practices, which result in the delivery of an effective service.

8.8.4 Trust Thrombosis & Anticoagulation Group

The Trust Thrombosis & Anticoagulation Group will review the policy and use of VTE prophylaxis and monitor use in liaison with the directorates to ensure that VTE prophylaxis is of the expected standard.

9 Training Requirements

- VTE thromboprophylaxis training is included on the mandatory training data set for all relevant clinical staff.
- Attendance at this training will be recorded via the Trust training database
- Healthcare professionals in direct contact with patients will be expected competence to adhere to the manufacturer's instructions in fitting compression stockings. This can be delegated to other non trained member provided the healthcare professional is satisfied that the individual achieves the level of competence required
- All staff who have direct contact with patients will be required to update their knowledge regarding the prevention and management of VTE as care and practice changes

- Where training needs are identified the line manager will make sure that the appropriate training is sourced and undertaken.

10 Monitoring and Compliance

Compliance and monitoring of this policy will be conducted via the following:

Audit / Quality Monitoring	Staff Responsible	Reporting to	Frequency
Risk assessments: VTE risk assessment compliance audit using icare system Monitoring of CQUIN target	Ward/unit managers	Group governance reporting framework This is a patient safety dimension on the blox report CQMG	Monthly
Prophylaxis procedure when VTE is suspected: Snapshot analysis of patients received thromboprophylaxis as listed on the Electronic Prescribing system.	Anticoagulant Team	Hospital Thrombosis & Anticoagulation Group and thereby to Medicines Management Group and Patient Safety Group	Quarterly
Review of all VTEs registered in the Trusts anticoagulant clinics to determine whether there was a failure of inpatient thromboprophylaxis process	Anticoagulant Team	Hospital Thrombosis & Anticoagulation Group and thereby to Medicines Management Group and Patient Safety Group	Continuous monitoring
Management of patient when positive diagnosis has been made: Audit of patient's case notes for evidence of adherence to this protocol.	Medical clinical audit	Local Directorate Audit Facilitator + Hospital Thrombosis & Anticoagulation Group and thereby to Medicines Management Group and Patient Safety Group	Quarterly
Training	Faculty	Monitoring via corporate induction and mandatory training	Monthly

11 References

1. House of Commons Health Committee (2005). The prevention of venous thromboembolism in hospitalised patients, London: The Stationery Office.
2. NICE Clinical Guideline 92 (January 2010) Venous Thromboembolism: reducing the risk. <http://guidance.nice.org.uk/CG92>

3. NICE Clinical Guideline 46 (2007) Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients undergoing surgery. National Institute of Clinical Excellence. <http://guidance.nice.org.uk/CG46>
4. Department of Health Venous Thromboembolism (VTE) Risk assessment tool
http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_088215
5. Venous thromboembolism: reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. National Clinical Guideline Centre – Acute Published by the and Chronic Conditions (formerly the National Collaborating Centre for Acute Care) at The Royal College of Physicians of London,
6. Government Response to the House of Commons Health Committee Report on the Prevention of Venous Thromboembolism in Hospitalised Patients – Second Report of Session 2004–05
7. Prophylaxis of Venous Thromboembolism, SIGN Publication No. 62
<http://www.sign.ac.uk/guidelines/fulltext/62/index.html>
8. Clinical Guideline for the management of thromboprophylaxis in the antenatal, intrapartum and postnatal period.

12 Meta Data and Revision history from previous policy

Document Title:	Prevention and prophylaxis for Venous Thromboembolism (VTE) in adult patients
Status	Active
Document Author:	Neil Smith, Consultant Haematologist, Misra Budhoo, Group Medical director, Thomas Russell, DVT Prophylaxis Research Nurse.
Ratification Date:	December 2011
Ratified by:	Trust Medical Director
Date Of Release:	January 2012
Review Date:	August 2013
Related documents	HEFT Medicine Policy, Consent Policy, Guideline for management of suspected DVT and Guideline for management of Pulmonary Embolism
Superseded documents	Prevention and prophylaxis for Venous Thromboembolism (VTE) in adult patients 1.0
Relevant External Standards/ Legislation	<ul style="list-style-type: none"> • NICE Clinical Guideline 92 (January 2010) Venous Thromboembolism: reducing the risk • Department of Health Venous Thromboembolism (VTE) Risk Assessment • Venous thromboembolism: reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital National Clinical Guideline Centre – Acute Published by the and Chronic Conditions (formerly the National Collaborating Centre for Acute Care) at The Royal College of Physicians

	<p>of London,</p> <ul style="list-style-type: none"> • Government Response to the House of Commons Health Committee Report on the Prevention of Venous Thromboembolism in Hospitalised Patients – Second Report of Session 2004–05 • Prophylaxis of Venous Thromboembolism , SIGN Publication No. 62 • Reducing the risk admitted to hospital NICE guideline Draft for consultation, March 2009 of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients
Key Words	<p>Deep Vein Thrombosis (DVT), Pulmonary Embolus (PE), Thromboprophylaxis, Heparin, low molecular weight heparin, unfractionated heparin, anti-embolism stockings, pneumatic compression devices</p>

Revision History

Version	Status	Date	Consultee	Comments	Action from Comment
0.1	Draft	May 2009 June 2009 June 2009	Corporate Nursing Mr Budhoo (CD Surgery) Chris Wright (Matron Surgery)	Use Trust Template Consult with medicine Consult with Orthopaedics Ask Band 5 to read document	Trust Template Used Medicine to be consulted Orthopaedics to be consulted Band 5 Nurse read document
0.2	Draft	June 2009	Maria MacKenzie (Corporate Nursing)	Make language clearer	Language updated
0.3	Draft	July 09	Liz Lees Consultant Nurse Acute Medicine	Make a corporate approach clearer on who will implement (delegation and implementation) Need to consider PGD for Nurses – Nurse led approach? Need to consider approach to training sessions Need to consider audit and reporting approaches	Accept or reject using track changes
0.4	Draft	Feb. '10	Neil Smith	Corrections and updating policy	Additions accepted
0.5	Draft	Mar '10	M Budhoo	updating	Changes and modifications
0.6	Final draft	Oct 2010	Naeema khan	finalising	Presented at clinical standards committee amendments required before approval
0.7	Final draft with amendments	Nov 2010	Naeema khan/ Misra Budhoo	Alterations made as requested	Amendments requested following 1 st electronic ratification
0.8	Draft for final ratification	Dec 2010	Naeema Khan Neil Smith, Sunanda Gargeswari		
1.0	Ratified	Jan 2011	Clinical Standards Committee	Ratified	Launched
2.0	First review and revision	Dec 2011	Neil Smith, Rachel Blackburn	Inclusion of the 72hrs re-assessment after initial assessment. Signed off by Trust Medical Director	Ratified launched

Appendix 1: Risk Assessment and re-assessment procedure

Identifying those at risk of developing a VTE is the first stage in VTE prophylaxis.

A risk assessment should be completed for all adult patients admitted to the trust as an inpatient or surgical/ medical day case.

- A VTE risk assessment should be carried out in Pre-Operative Assessment/ pre admission clinic for all elective patients. This can be performed up to 17 weeks prior to admission. Where a pre operative attendance does not occur this will be completed on the patients admission to hospital.
- If a risk assessment has not been done at pre-op it should be done on admission to ward or admission lounge. SAU is for surgical emergency patients not elective.
- If the patient is to be admitted, a VTE risk assessment will be completed no later than 24 hours of decision to admit and the recommended thromboprophylaxis prescribed.
- Nurses may assess patients provided that they are competent in assessing such patients for risk factors.
- DVT prophylaxis both pharmaceutical and mechanical compression stockings have to be prescribed by medically qualified personnel (**Appendix 4 and 5**)
- Risk assessment can be carried out by a qualified healthcare professional however; it is the responsibility of the prescriber to ensure that prescribing of DVT prophylaxis is appropriate and should check that the risk assessment is appropriate.
- A repeat assessment will be completed 72 hours after initial assessment.

Planning for discharge

- Offer patients and/or their families or carers verbal and written information (from the patient information database) on:
 1. Signs and symptoms of DVT and PE
 2. Importance of seeking medical help and who to contact if DVT, PE or other adverse event suspected.
 3. If discharged with VTE prophylaxis, also offer patients and/or their families or carers information on:
 - Correct use and duration of VTE prophylaxis at home
 - Importance of using VTE at home correctly and for the recommended duration
 - Signs and symptoms of adverse events related to VTE prophylaxis
 - Who to contact if they have problems using VTE prophylaxis at home.
 4. If discharged with anti-embolism stockings, ensure that the patient understands the benefits of wearing them
 5. Understands the need for daily hygiene removal
 6. Is able to remove and replace the stockings or has someone who can do this
 7. Knows what to look for, such as skin marking, blistering or discolouration, particularly over heels and bony prominences
 8. Knows who to contact if there is a problem

If discharged with pharmacological or mechanical VTE prophylaxis ensure that:

1. The patient is able to use it or has someone who can do this
2. The patient's GP is notified.

Information for patient is available on the Trust Patient Advice and and Information Database.

Appendix 2: VTE Risk assessment tool

Risk Assessment for Venous Thromboembolism

Step: 1 Risk assess all patients within 24 hours of decision to admit. A repeat assessment will be completed 72 hours after initial assessment or whenever clinical situation changes

<input type="checkbox"/> Surgical patient
<input type="checkbox"/> Medical patient expected to have ongoing reduced mobility >3 days relative to normal state
<input type="checkbox"/> Medical patient NOT expected to have significantly reduced mobility relative to normal

Step: 2 Assess Thrombosis (tick all the boxes that apply). Any tick should prompt thromboprophylaxis if no bleeding risk

Patient Related	Admission Related
<input type="checkbox"/> Active cancer or cancer treatment <input type="checkbox"/> Age > 60 <input type="checkbox"/> Dehydration <input type="checkbox"/> Known thrombophilias <input type="checkbox"/> Personal history or first-degree relative with a history of VTE <input type="checkbox"/> One or more significant medical comorbidities (e.g., heart disease, metabolic, endocrine or respiratory pathologies, acute infections, inflammatory conditions) <input type="checkbox"/> Obesity (BMI >30 kg/m ²) <input type="checkbox"/> Use of hormone replacement therapy <input type="checkbox"/> Use of oestrogen-containing contraceptive therapy <input type="checkbox"/> Varicose veins with phlebitis <input type="checkbox"/> Pregnancy or < 6 weeks post partum (see separate pregnancy risk assessment chart)	<input type="checkbox"/> Significantly reduced mobility for 3 days or more <input type="checkbox"/> Hip or knee replacement <input type="checkbox"/> Hip fracture <input type="checkbox"/> Total anaesthetic + surgical time > 90 minutes <input type="checkbox"/> Surgical involving pelvis or lower limb with a total anaesthetic + surgical time > 60 minutes <input type="checkbox"/> Acute surgical admission with inflammatory or intra-abdominal condition <input type="checkbox"/> Critical care admission <input type="checkbox"/> Surgery with significant reduction in mobility <input type="checkbox"/> Any additional VTE risk factors considered significant by clinicians <input type="checkbox"/> No significant risk factor
Other	

<input type="checkbox"/> No significant risk factors
--

Step: 3 Assess Bleed Risk (tick all the boxes that apply). If bleeding risk sufficient omit pharmacological prophylaxis

Patient Related

<input type="checkbox"/> Active bleeding
<input type="checkbox"/> Acquired bleeding disorder (e.g. acute liver failure)
<input type="checkbox"/> Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with INR>2)
<input type="checkbox"/> Acute Stroke
<input type="checkbox"/> Thrombocytopenia (platelets < 75x109/l)
<input type="checkbox"/> Uncontrolled systolic hypertension, (=230/120mmHg)
<input type="checkbox"/> Untreated inherited bleeding disorders e.g. haemophilia and von Willebrand's disease

Admission Related

<input type="checkbox"/> Neurosurgery, spinal surgery or eye surgery
<input type="checkbox"/> Other procedure with high bleeding risk
<input type="checkbox"/> Lumbar puncture/epidural/spinal anaesthesia expected within next 12 hours
<input type="checkbox"/> Lumbar puncture/epidural/spinal anaesthesia performed within last 4 hours
<input type="checkbox"/> Any additional bleeding risk factors considered significant by clinicians

Other

<input type="checkbox"/> No significant risk factors
--

Step: 4 Prescribe Thromboprophylaxis (please tick type given)

<input type="checkbox"/> Pharmacological thromboprophylaxis (Enoxaparin)
<input type="checkbox"/> Mechanical thromboprophylaxis (caution peripheral vascular disease)
<input type="checkbox"/> None
<input type="checkbox"/> Contra-indication to mechanical TP

Appendix 3 Preferred types of Thromboprophylaxis

1. **Low Molecular Weight Heparin (see trust guideline ‘Low molecular weight Heparin’)**

- The trust’s Low Molecular Weight Heparin of choice is Enoxaparin (Clexane, Sanofi-Aventis). For prescribing information see BNF and summary of Product Characteristics (SPC).
- <http://www.medicines.org.uk/EMC/medicine/12847/SPC/Clexane+Syringes+and+Clexane+Multidose+Vial>
- Low molecular weight Heparin is contraindicated in patients with renal failure or a history of Heparin-induced thrombocytopenia (HIT).
- Low Molecular Weight Heparin is only licensed to be given in abdomen or thigh and therefore should not be given in any other site.

2. **Unfractionated Heparin**

- Unfractionated heparin is used in patients with severe renal impairment who are assessed to receive thromboprophylaxis (See BNF and SPC).
- Unfractionated Heparin is contraindicated in patients with a history of Heparin-induced thrombocytopenia (HIT).

3. **Oral Direct Thrombin / Factor Xa inhibitors (Dabigatran, Rivaroxaban).**

These are both currently licensed only for thromboprophylaxis following hip and knee arthroplasty. For further information see BNF and SPC’s

4. **Important exceptions and considerations**

Some patients will be taking oral anticoagulants (usually warfarin) prior to admission. All such patients admitted routinely should have a plan for management of anticoagulation. If warfarin is continuing during admission, patients do not need additional thromboprophylaxis.

If warfarin is discontinued for example peri-operatively, then thromboprophylaxis should be considered until oral anticoagulation is re-instituted and therapeutic.

Appendix 4: Guide for mechanical prophylaxis

Base the choice of mechanical VTE prophylaxis on clinical condition, surgical procedure and patient preference. Choose any one of:

- Anti-embolism stocking (thigh or knee length depending on Trust standard)
- Foot impulse devices
- Intermittent pneumatic compression devices (thigh or knee length depending on Trust standard)

Anti-embolism stockings

a) **Do not offer** anti-embolism stockings to patients with:

- Suspected or proven peripheral arterial disease
- Peripheral arterial bypass grafting
- Peripheral neuropathy or other causes of sensory impairment
- Local condition in which stockings may cause damage, such as fragile 'tissue paper' skin, dermatitis, gangrene or recent skin graft
- Known allergy to material of manufacture
- Cardiac failure
- Severe leg oedema or pulmonary oedema from congestive heart failure
- Unusual leg size or shape
- Major limb deformity preventing correct fit.
- Use caution and clinical judgement when applying anti-embolism stockings over venous ulcers or wounds.

b) Measure legs and use correct stocking size. Staff who fit stockings should be trained in their use and should show patients how to use them.

c) If oedema or postoperative swelling develops, ensure legs are re-measured and stockings refitted.

d) If arterial disease suspected, seek expert opinion before fitting stockings.

e) Use stockings that provide graduated compression and produce a calf pressure of 14–15 mmHg.

f) Encourage patients to wear the stockings day and night from admission until they no longer have significantly reduced mobility.

g) Remove stockings daily for hygiene purposes and to inspect skin condition. If patient has significant reduction in mobility, poor skin integrity or sensory loss, inspect skin two or three times per day, particularly over heels and bony prominences.

h) Discontinue use of stockings if there is marking, blistering or discolouration of skin, particularly over heels and bony prominences, or if patient has pain or discomfort. If suitable, offer intermittent pneumatic compression or foot impulse devices as alternative.

i) Show patients how to use anti-embolism stockings correctly and ensure they understand that this will reduce their risk of developing VTE.

j) Monitor use of anti-embolism stockings and offer assistance if they are not being worn correctly.

Foot impulse and intermittent pneumatic compression devices

a) Do not offer these devices to patients with a known allergy to the material of manufacture.

- b) Encourage patients on the ward who have these devices to use them for as much of the time as is possible and practical, both when in bed and when sitting in a chair.
- c) Consider offering additional mechanical or pharmacological VTE prophylaxis if patient is at risk of VTE. Take into account risk of bleeding and of co morbidities such as arterial thrombosis.
- d) If the risk of bleeding outweighs the risk of VTE, offer mechanical VTE prophylaxis.
- e) Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are taking vitamin K antagonists and who are within their therapeutic range, providing anticoagulant therapy is continued.
- f) Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are having full anticoagulant therapy (for example, fondaparinux sodium, LMWH or UFH).

Appendix 5: Guidance on VTE prophylaxis (Pathways)

Please note that the Pathway for Thromboprophylaxis in pregnancy and up to 6 weeks post partum can be found in [this Trust Clinical Guideline](#) for the management of thromboprophylaxis in the antenatal, intrapartum and postnatal period.

The pathways below follow:

[DoH/ NICE pathway for Thromboprophylaxis in General Medical Patients](#)

[DoH/ NICE pathway for Thromboprophylaxis in suspected stroke patients](#)

[DoH/ NICE pathway for Thromboprophylaxis in Medical patients with cancer or a central venous catheter](#)

[DoH/ NICE pathway for Thromboprophylaxis in Medical patients in palliative care](#)

[DoH/ NICE pathway for Thromboprophylaxis in Surgical Patients \(excluding Orthopaedics\)](#)

[DoH/ NICE pathway for Thromboprophylaxis in Surgical Patients \(excluding Orthopaedics 2\)](#)

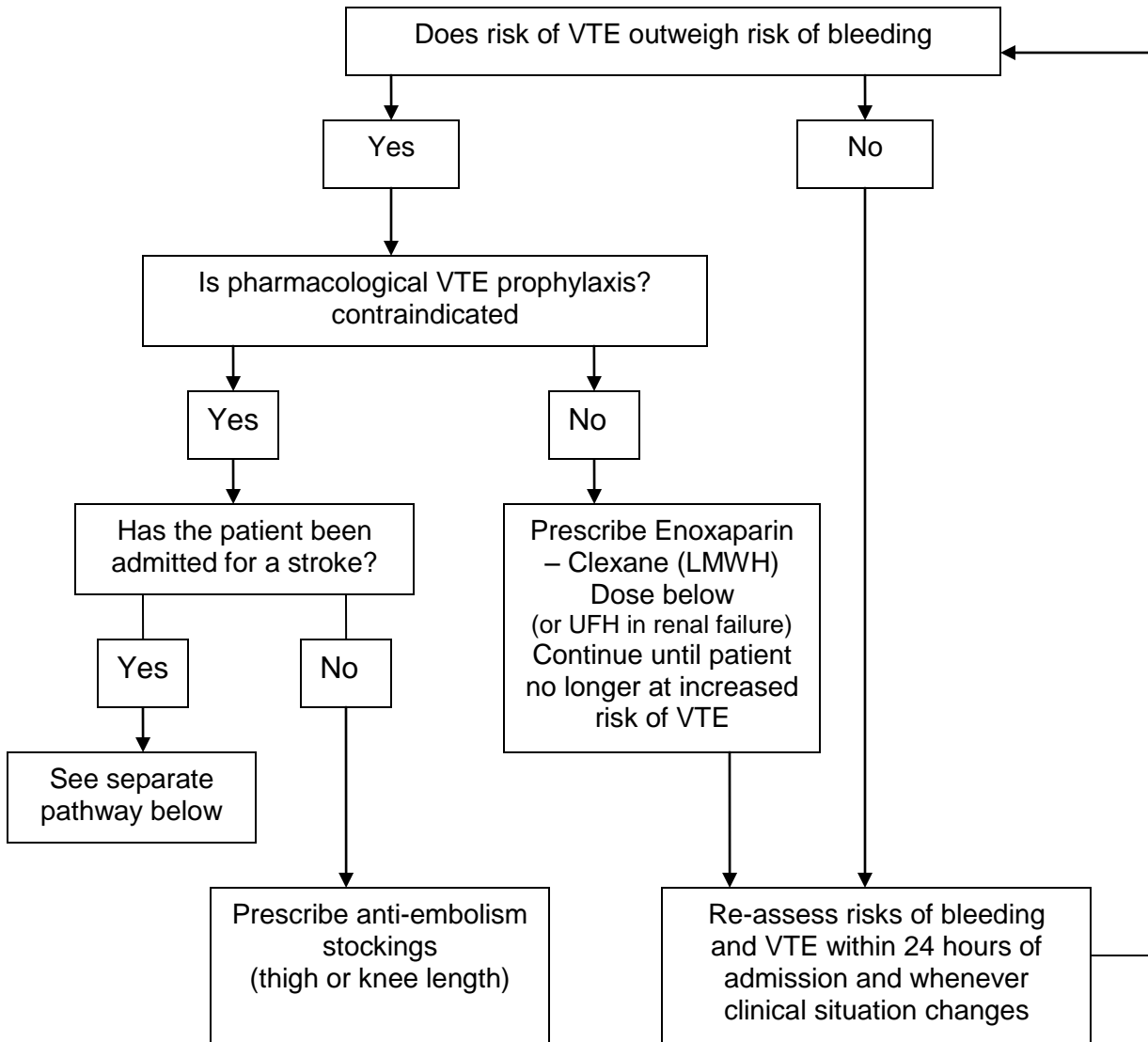
[DoH/ NICE pathway for Thromboprophylaxis in Orthopaedic Surgery \(1\)](#)

[DoH/ NICE pathway for Thromboprophylaxis in Orthopaedic Surgery \(2\)](#)

[DoH/ NICE pathway for Thromboprophylaxis in Trauma](#)

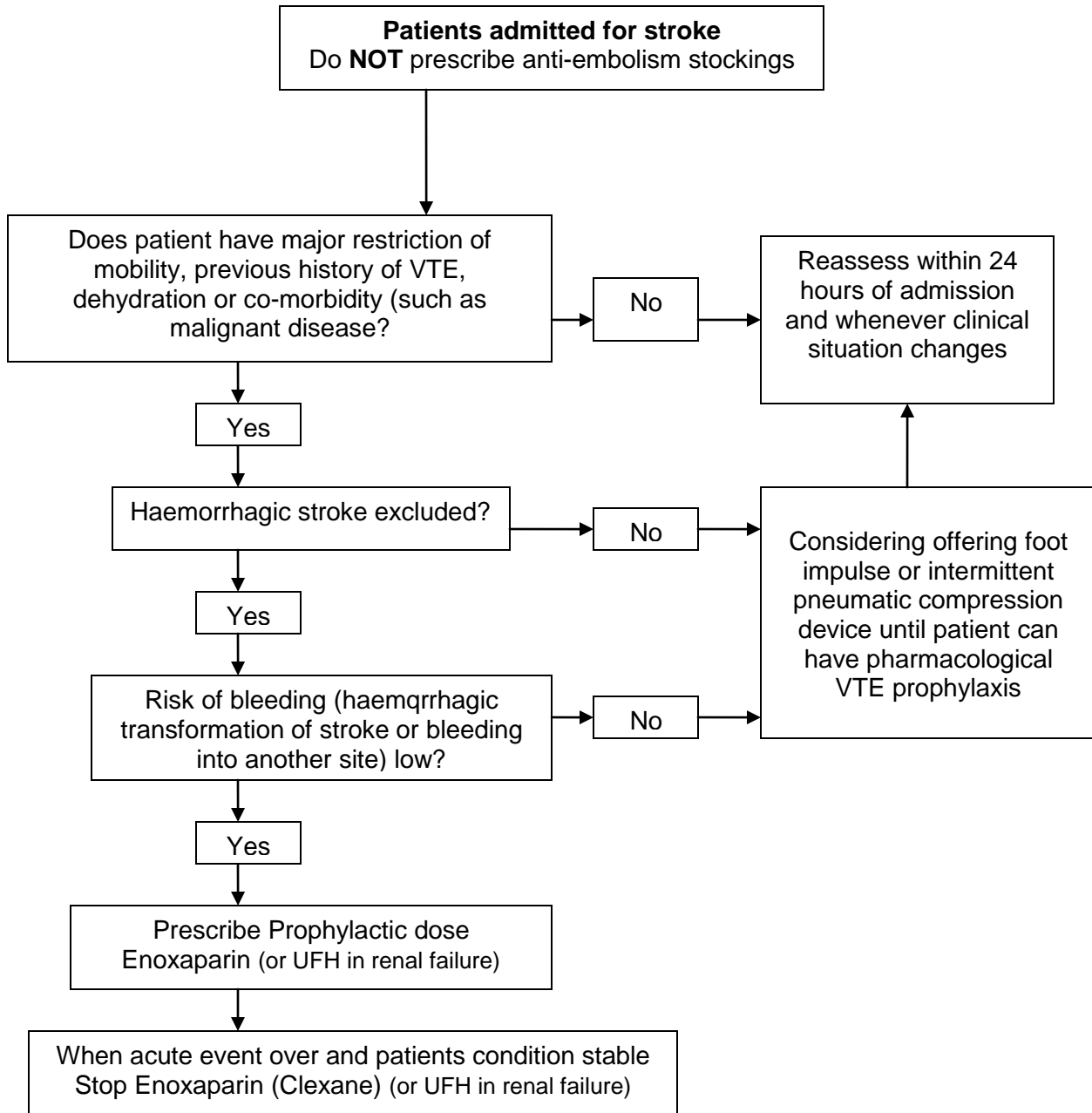
[DoH/Stroke pathway for lower limb cast](#)

DoH/ NICE pathway for Thromboprophylaxis in General Medical Patients



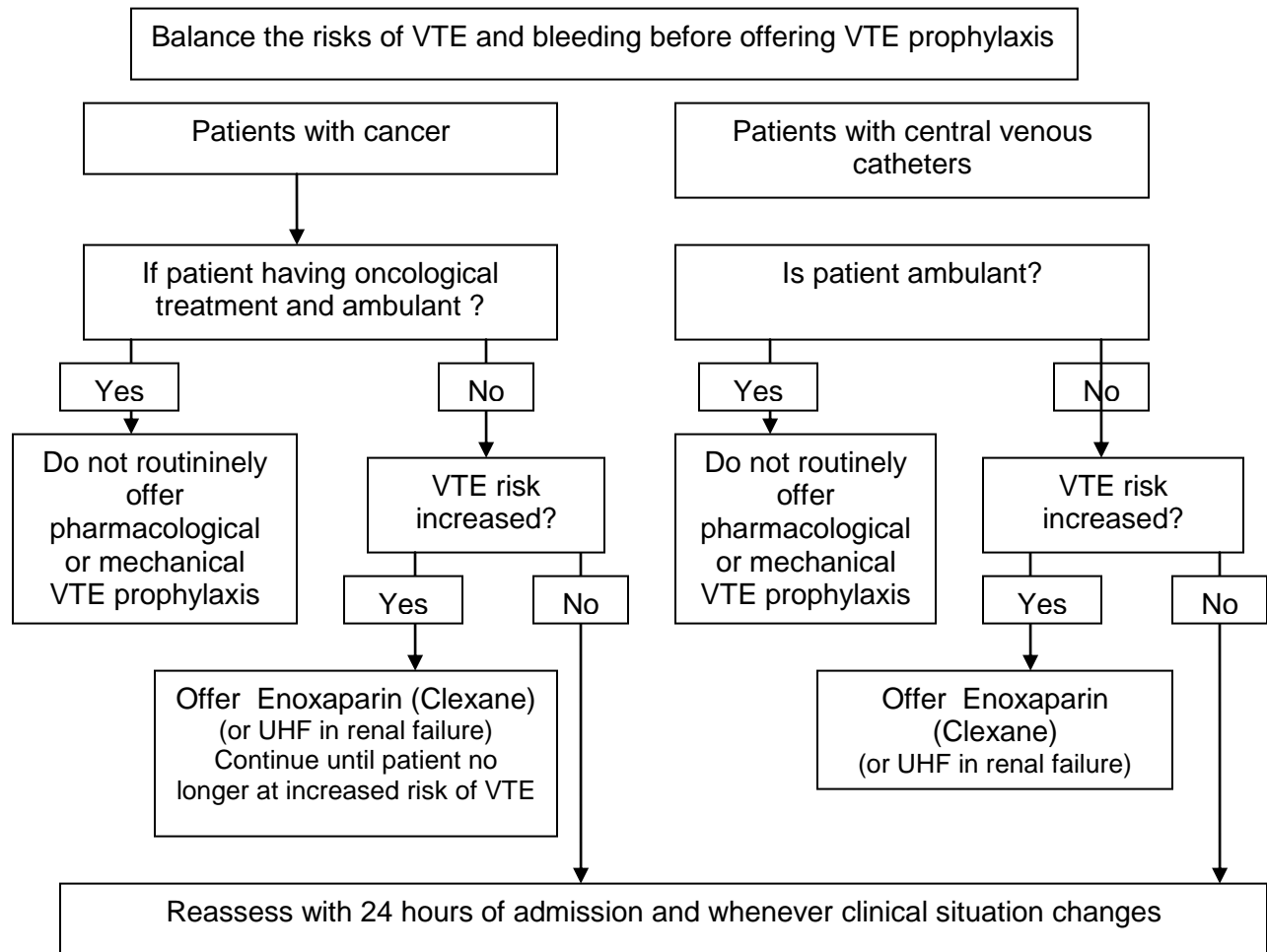
Body weight	Enoxaparin (100 units/mg)
<50 kg	20 mg once daily
50 - 90 kg	40 mg once daily
91 - 130 kg	60 mg once daily
131 - 170 kg	80 mg once daily
>170 kg	0.6 mg/kg/day
Duration – 7 days or until mobile whichever longer	

DoH/ NICE pathway for Thromboprophylaxis in suspected stroke patients



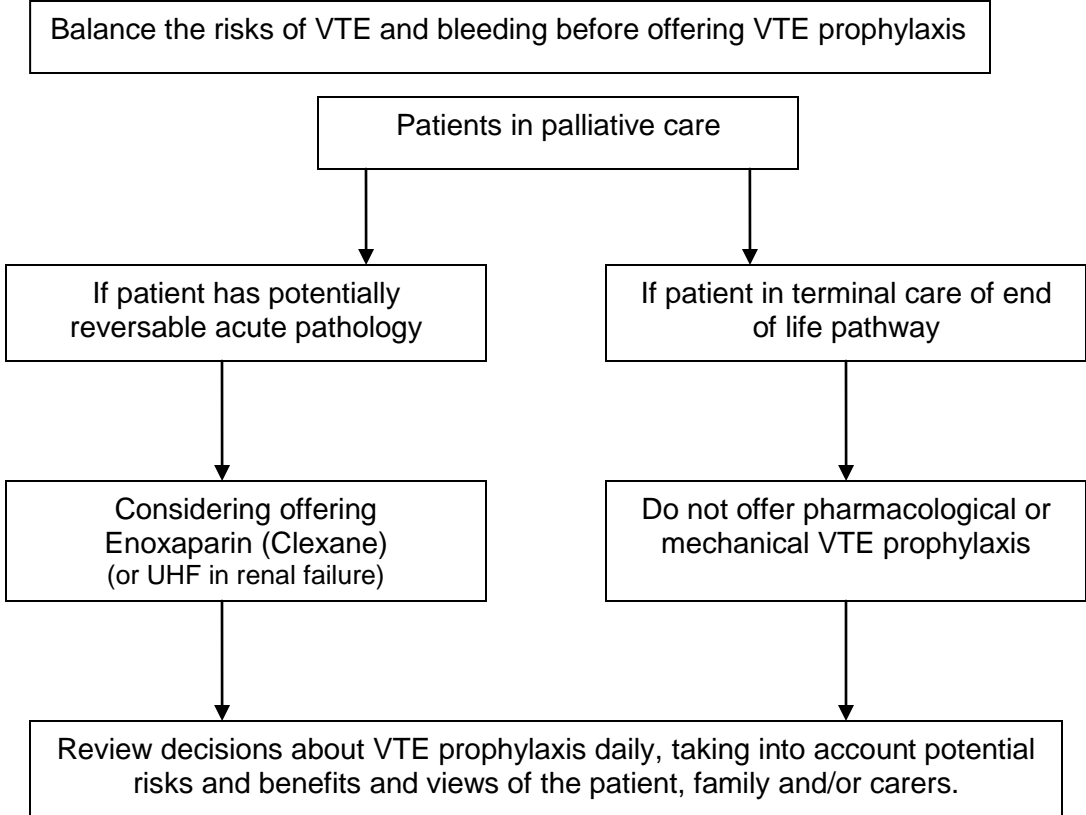
Body weight	Enoxaparin
<50 kg	20 mg once daily
50 - 90 kg	40 mg once daily
91 - 130 kg	60 mg once daily
131 - 170 kg	80 mg once daily
>170 kg	0.6 mg/kg/day

DoH/ NICE pathway for Thromboprophylaxis in Medical patients with cancer or a central venous catheter



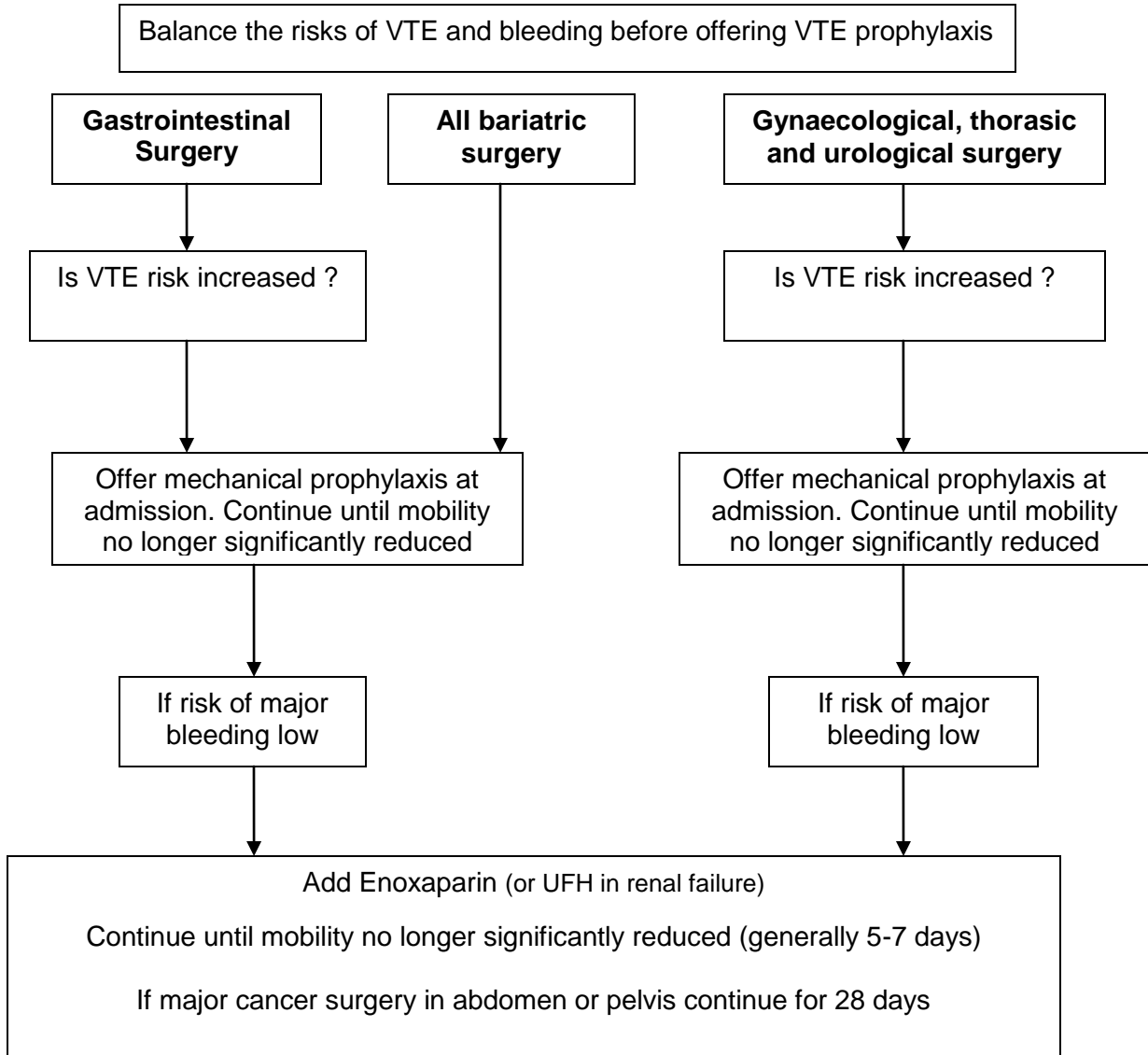
Body weight	Enoxaparin Dose
<50 kg	20 mg once daily
50 - 90 kg	40 mg once daily
91 - 130 kg	60 mg once daily
131 - 170 kg	80 mg once daily
>170 kg	0.6 mg/kg/day

DoH/ NICE pathway for Thromboprophylaxis in Medical patients in palliative care



Body weight	Enoxaparin Dose
<50 kg	20 mg once daily
50 - 90 kg	40 mg once daily
91 - 130 kg	60 mg once daily
131 - 170 kg	80 mg once daily
>170 kg	0.6 mg/kg/day

DoH/ NICE pathway for Thromboprophylaxis in Surgical Patients (excluding Orthopaedics)



Body weight	Enoxaparin Dose
<50 kg	20 mg once daily
50 - 90 kg	40 mg once daily
91 - 130 kg	60 mg once daily
131 - 170 kg	80 mg once daily
>170 kg	0.6 mg/kg/day

- Mechanical Prophylaxis include any one of:
- Anti-embolism stockings (thigh or knee length)
 - Foot impulse devices
 - Intermittent pneumatic compression devices (thigh or knee length)

DoH/ NICE pathway for Thromboprophylaxis in Surgical Patients (excluding Orthopaedics)

Balance the risks of VTE and bleeding before offering VTE prophylaxis

Vascular Surgery

Other surgery

Day surgery

Is VTE risk increased ?

Is VTE risk increased ?

Is VTE risk increased ?

Offer mechanical prophylaxis at admission.
If peripheral vascular disease present, seek expert opinion before fitting anti-embolism stockings
Continue until mobility no longer significantly reduced

Offer mechanical prophylaxis at admission.
Continue until mobility no longer significantly reduced

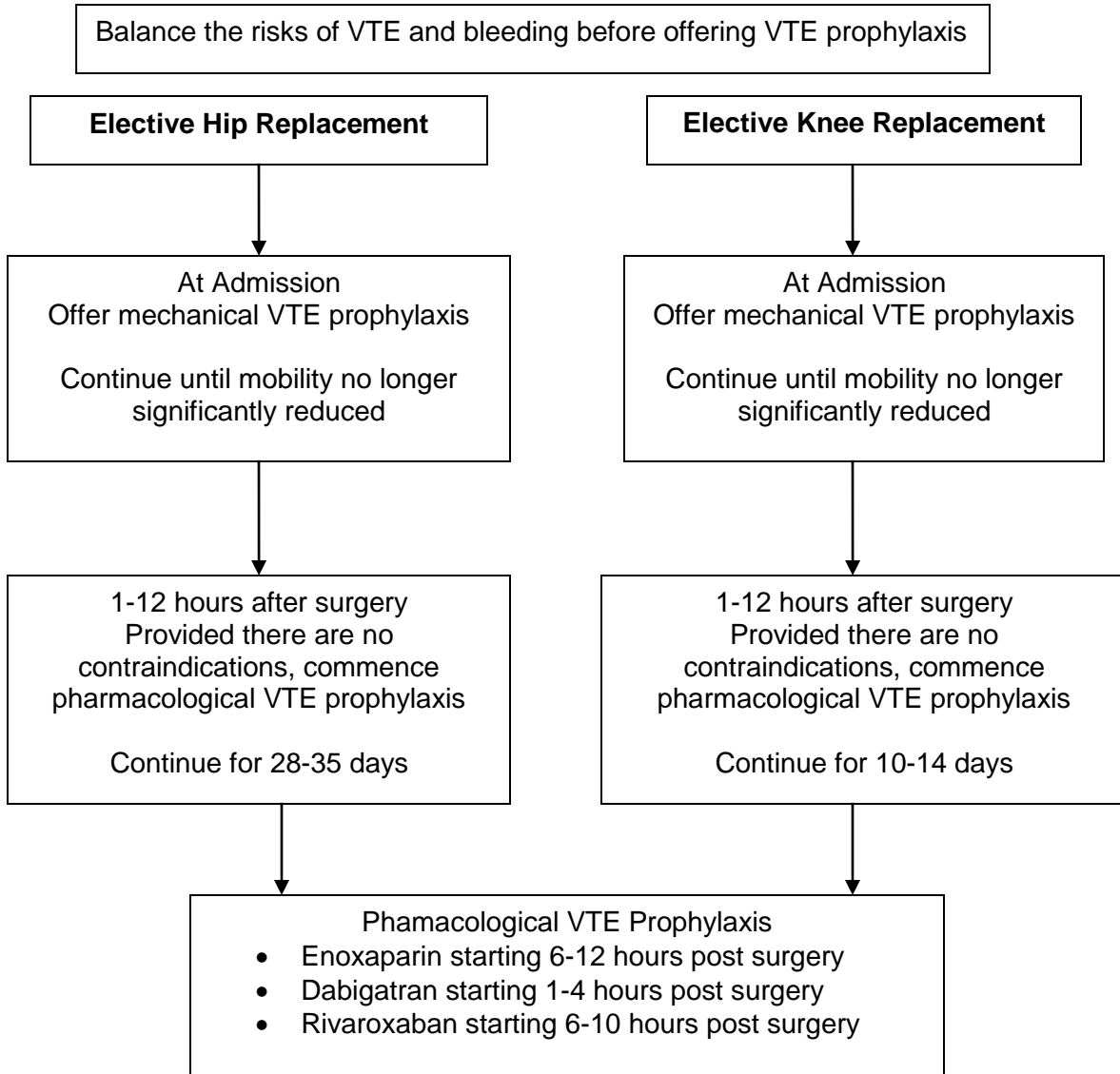
If major risk of bleeding is low
Add Enoxaparin (or UFH for patients with renal failure)
Continue until mobility no longer significantly reduced (generally 5-7 days) including after discharge in day case patients

Body weight	Enoxaparin Dose
<50 kg	20 mg once daily
50 - 90 kg	40 mg once daily
91 - 130 kg	60 mg once daily
131 - 170 kg	80 mg once daily
>170 kg	0.6 mg/kg/day

Mechanical Prophylaxis include any one of:

- Anti-embolism stockings (thigh or knee length)
- Foot impulse devices
- Intermittent pneumatic compression devices (thigh or knee length)

DoH/ NICE pathway for Thromboprophylaxis in Orthopaedic Surgery (1)



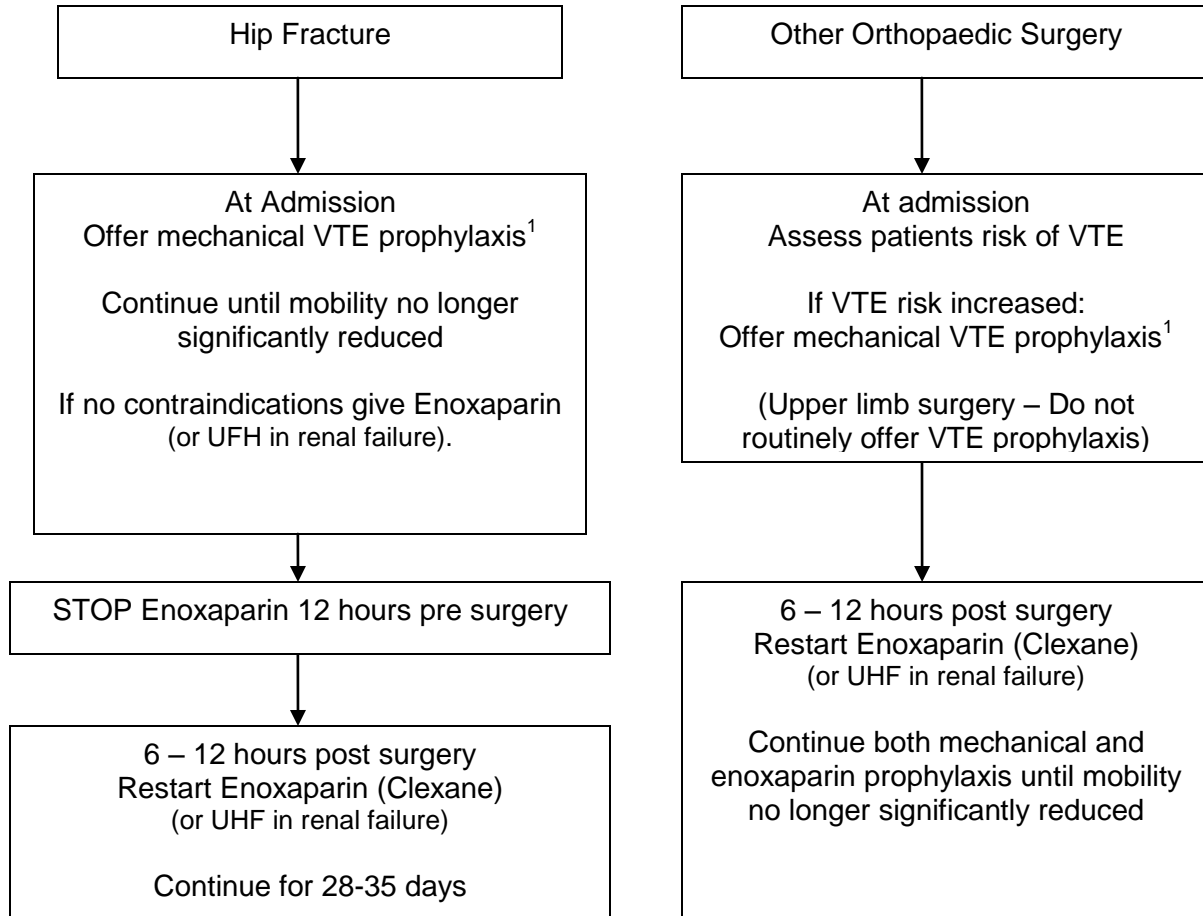
Body weight	Enoxaparin Dose
<50 kg	20 mg once daily
50 - 90 kg	40 mg once daily
91 - 130 kg	60 mg once daily
131 - 170 kg	80 mg once daily
>170 kg	0.6 mg/kg/day

¹ Mechanical Prophylaxis include any one of:

- Anti-embolism stockings (thigh or knee length)
- Foot impulse devices
- Intermittent pneumatic compression devices (thigh or knee length)

DoH/ NICE pathway for Thromboprophylaxis in Orthopaedic Surgery (2)

Balance the risks of VTE and bleeding before offering VTE prophylaxis



Body weight	Enoxaparin Dose
<50 kg	20 mg once daily
50 - 90 kg	40 mg once daily
91 - 130 kg	60 mg once daily
131 - 170 kg	80 mg once daily
>170 kg	0.6 mg/kg/day

¹ Mechanical Prophylaxis include any one of:

- Anti-embolism stockings (thigh or knee length)
- Foot impulse devices
- Intermittent pneumatic compression devices (thigh or knee length)

DoH/ NICE pathway for Thromboprophylaxis in Trauma

Balance the risks of VTE and bleeding before offering VTE prophylaxis

Patient admitted with major injury

Patient admitted with spinal injury

Offer mechanical VTE prophylaxis¹ at admission or as soon as clinically possible
Continue until mobility no longer significantly reduced

Assess patients risks of VTE and Bleeding

If risk of VTE outweighs risk of bleeding and bleeding risk is low
Give Enoxaparin (or UFH in renal failure)
Continue until mobility no longer significantly reduced
Regularly re assess risks of VTE and bleeding

- ¹ Mechanical Prophylaxis include any one of:
- Anti-embolism stockings (thigh or knee length)
 - Foot impulse devices
 - Intermittent pneumatic compression devices (thigh or knee length)

Patient having lower limb plaster cast

Assess VTE risk – If increased
Give Enoxaparin (or UHF in renal failure)
Continue until plaster cast removed

Body weight	Enoxaparin Dose
<50 kg	20 mg once daily
50 - 90 kg	40 mg once daily
91 - 130 kg	60 mg once daily
131 - 170 kg	80 mg once daily
>170 kg	0.6 mg/kg/day