Whittington Health NHS

Thromboprophylaxis: adult SURGICAL inpatients:

Guideline for reducing the risk of venous thromboembolism in non-pregnant adult surgical inpatients

Subject:	Thromboprophylaxis (VTE risk reduction)
Policy Number	N/A
Ratified By:	Clinical Guidelines Committee
Date Ratified:	July 2015
Version:	3.0
Policy Executive Owner:	Clinical Director, MFNS ICSU
Designation of Author:	Farrukh Shah, Ian Man, Alison Thomas and Kevin Gilbride
Name of Assurance Committee:	Clinical Guidelines Committee
Date Issued:	October 2015
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Target Audience:	All clinical staff
Key Words:	Thromboprophylaxis, venous thromboembolism, tinzaparin

Version Control Sheet

Version	Date	Author	Status	Comment
3	Oct 2015	Farrukh Shah Alison Thomas Ian Man Kevin Gilbride	Live	Reviewed. Incorporation of guideline on dabigatran for elective hip and knee surgery

➢ Criteria for use

These guidelines are for use by all medical, nursing and pharmacy staff caring for adult (age ≥18) **surgical** inpatients.

➢ Background/ introduction

This guideline takes into account NICE clinical guideline 92, 2010 (1) and the review of the guideline from July 2014 (2). This lays out a number of steps in the pathway for "Reducing the Risk of Venous Thromboembolism in Hospital Inpatients:

1. Provision of patient information on prevention of VTE
2. VTE risk reduction – general measures for all patients
3. Assessment of VTE and bleeding risks – to assess if patients are at increased risk of VTE to decide if mechanical and/or pharmacological thromboprophylaxis is indicated
4. Choice of VTE prophylaxis – dependent on patient group (non-orthopaedic surgery, orthopaedic surgery, major trauma/spinal surgery, lower limb plaster casts)
5. Re-assessment of risks: 24 hours post admission and whenever the patient's clinical condition changes
6. Discharge planning & extended thromboprophylaxis

THE KEY ELEMENTS ARE SUMMARISED IN:
APPENDIX 1: EMERGENCY ADMISSIONS
APPENDIX 2: ELECTIVE SURGERY

Ultimately the decision to administer thromboprophylaxis or not to an individual patient rests with that patient's consultant. **In difficult cases. Advice should be sought from haematology and, if relevant, other specialists.**

➢ Inclusion/ exclusion criteria

These guidelines apply to the following patient groups:

Patients admitted to adult wards as inpatients or formally admitted for day-case procedures including:

- Surgical inpatients
- Patients admitted to a hospital bed for day-case surgical procedures

The guideline does not apply to:

- Medical patients (see **Thromboprophylaxis: MEDICAL patients**)
- Patients admitted with a diagnosis of, or suspected diagnosis of deep vein thrombosis or pulmonary embolus
- People under the age of 18 years
- Patients attending hospital as outpatients
- Patients attending the emergency department who are not admitted

➢ Step 1: Provision of patient information

- All patients should be provided with written and verbal information regarding the risks of VTE and how to reduce these.
- Copies of the patient information leaflet are available on the Trust intranet.

➢ Step 2a: Patients having elective surgery – general risk reduction measures

- VTE risk assessment should be performed as part of pre-operative assessment
- Women should be advised to consider stopping oestrogen-containing contraceptives and hormone replacement therapy 4 weeks before surgery to reduce thrombotic risk
- The risks/benefits of stopping any pre-existing anti-platelet therapy one week before surgery should be assessed to reduce bleeding risk
- Consider the use of regional anaesthesia to reduce the risk of VTE. If neuraxial block is planned this should be clearly documented so that the timing of any pharmacological thromboprophylaxis can be timed to reduce the risk of epidural haematoma
- VTE prophylaxis (mechanical or pharmacological) should not routinely be offered to patients have surgery with local anaesthesia by local infiltration with no limitation of mobility

	Please see Whittington Health Guideline: '**Guideline for patients on anticoagulants or anti-platelet therapies undergoing procedures – peri-operative bridging"**

➢ Step 2b: All patients admitted to hospital – general risk reduction measures

- General risk reduction measures should be undertaken in all patients including:
  - Encourage mobilisation as soon as and as much as possible
  - Adequate hydration and prevention of dehydration
- Aspirin and other anti-platelet drugs are not considered adequate thromboprophylaxis

➢ Step 3a: Identification of patients at increased risk of VTE

- Risk assessment for all patients must be completed electronically on Sunquest ICE
- VTE risk assessment takes into account, pre-existing patient factors, bleeding risk and admission-related factors.

Table 1: Risk factors for VTE:

• Age >60 years • Obesity (Body mass index >30kg/m^2) • Personal history or 1st degree relative with history of VTE • Known thrombophilia • Use of hormone replacement therapy or oestrogen containing contraceptive • Critical care admission • Dehydration • Varicose veins with phlebitis	• Active cancer or receiving cancer treatment • Medical co-morbidities including: • Heart disease • Lung disease • Inflammatory disorders • Metabolic/endocrine disorders e.g. diabetes • Sickle cell disease or thalassaemia • Nephrotic syndrome • Recent surgery (within past 12 weeks)

Patients are considered at increased risk of VTE if they have *ONE* of the following:

- Acute surgical admission with inflammatory or intra-abdominal collection
- Expected significant reduction in mobility
- Surgical procedure with **total** anaesthetic and surgical time of >90 minutes (or 60 minutes if pelvic or lower limb surgery)
- **One or more** risk factors (Table 1)

➢ Step 3b: Identification of patients at increased risk of bleeding

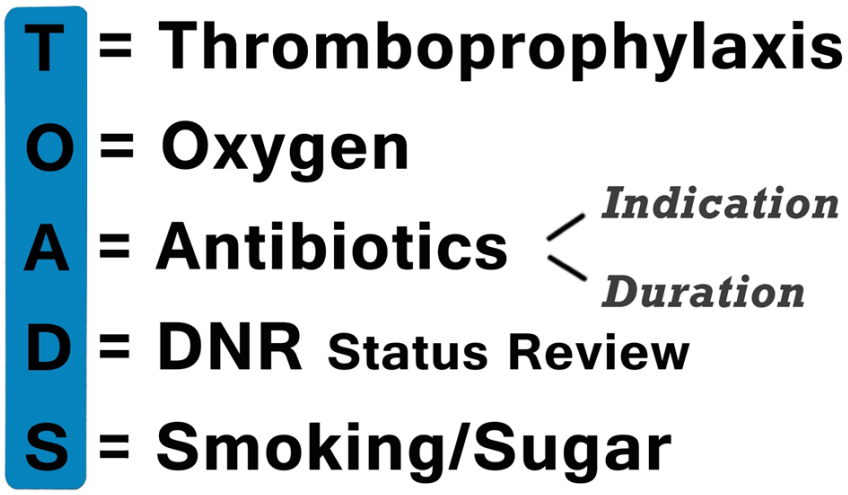
- All patients must be assessed for bleeding risk prior to prescription of pharmacological VTE prophylaxis (e.g. tinzaparin).

Table 2: Contraindications to pharmacological thromboprophylaxis

- Active bleeding
- Thrombocytopenia (platelets <50 x10^9/L)
- Concurrent use of therapeutic anticoagulants (e.g. warfarin with INR>2)
- Lumbar puncture/spinal/epidural anaesthesia within previous 4 hours
- Lumbar puncture/spinal/epidural anaesthesia expected within 12 hours
- Uncontrolled systolic hypertension (230/120mmHg or higher)
- New stroke
- Known bleeding disorder **(*discuss with haematology*)**
- Previous heparin induced thrombocytopenia (HIT) or allergy to tinzaparin/heparin ***(must be discuss with haematology for alternatives***)

- Where the overall risks of bleeding and VTE are difficult to discern, a senior member of the admitting team and haematology should be involved.
- **Temporary inferior vena caval filters** should be considered in patients who are at very high risk of VTE and in whom pharmacological and mechanical thromboprophylaxis is contraindicated. These patients should be initially be discussed with haematology by a senior member of the patient's team and, if an IVC filter is recommended, discussed with Dr Kumaradeevan (Consultant Radiologist). Where patients have an IVC filter inserted an appointment to remove the filter when no longer required (usually within 6 weeks) MUST be booked at the time of filter insertion.

- All patients should be reviewed every 3 to 4 days or if the clinical condition changes. To assist the review process the trust has introduced a TOADS sticker to be used in the case notes twice weekly at senior clinician ward rounds to review and document clinical care outlined below



- **Step 4: Prescription of appropriate mechanical and pharmacological thromboprophylaxis**

- If surgery is delayed, pharmacological thromboprophylaxis should be started pre-operatively in patients with decreased mobility or emergency admissions

- If pharmacological thromboprophylaxis is started pre-operatively the last dose should be given at least 12 hours before the planned operation start time (except bariatric surgery – see below)

- Post-operatively pharmacological thromboprophylaxis should start 6 hours post-operatively provided that the surgical team are happy that the bleeding risk is minimal

- Thromboprophylaxis should be continued until mobility is no longer significantly reduced. For most patients this is usually 5-7 days post-operatively. Extended thromboprophylaxis should be given to patients having hip and knee replacements and major abdominal or pelvic cancer surgery (see **Step 6**)

Bariatric surgery:

The local policy is: 2500 units tinzaparin 2 hours pre-procedure and a second dose of 2500 units the evening post-procedure. Then tinzaparin 4500 units daily thereafter

Urological surgery:

Thromboprophylaxis is not to be given to patients having: transurethral surgery, percutaneous nephrolithotomy or laparoscopic nephron sparing surgery.

Orthopaedic surgery:

- Elective knee and hip replacements: Start dabigatran **post-operatively**: If dabigatran contra-indicated, use tinzaparin 4500 units OD SC for patients weighing 50-149kg. For patients weighing less than 50kg and more than 149kg, see tinzaparin dosing below

Continue for 28-35 days post-operatively for hip replacements; 10-14 days post-operatively for knee replacements. (see below for dosing)

- Hip fracture: tinzaparin should be started on admission unless the patient is going to theatre within 12 hours of admission. Tinzaparin should be used (dabigatran not licensed). Continue tinzaparin for 28-35 days post-operatively.

LOWER LIMB PLASTER CASTS:

Patients with lower limb plaster casts or significant lower limb trauma resulting in immobility should be risk assessed for their risk of VTE and thromboprophylaxis considered in those at increased risk. LMWH should be offered until the plaster cast is removed.

- Tinzaparin is the low molecular weight heparin of choice in Whittington Health.

Tinzaparin dosing

- *Weight <50kg:* 2500 units OD SC
- *Weight 50kg – 149kg:* 4500 units OD SC
- *Weight >150kg:* 7500 units OD SC (but see bariatric surgery above)

Allergies to tinzaparin: There is some cross-reactivity between tinzaparin, enoxaparin and daltaparin. The agent of choice for patients with an allergy to LMWH is fondaparinux 2.5mg od

Renal failure: If creatinine clearance or eGFR<20ml/min: use 5000 units unfractionated heparin SC **BD**

Dabigatran thromboprophylaxis dosing:

Standard Dose	**Reduced dose**	**Do not use dabigatran**
110mg po 1-4hr post op Then 220mg po daily	- 75mg 1-4hr post op - then 150mg daily	Consider tinzaparin/ UFH instead
	Moderate renal impairment (CrCl 30-50ml/min) Age >75 years On amiodarone Platelets 50-100x10^9/L	Severe renal impairment (CrCl <30ml/min) On rifampicin, quinidine or other anticoagulants or antiplatelet agents INR>1.4 or platelets <50x10^9/L ALT >x2 upper limit normal

Mechanical thromboprophylaxis – prescribe for all surgical patients:

Anti-embolism stockings and pneumatic compression devices are available on all wards throughout the hospital for use in high risk patients and those with contra-indications to anti-embolism stockings.

Correct use of anti-embolism stockings:

- Patients should not be prescribed anti-embolism stockings if they have any of the contra-indications listed in Table 3
- Patients prescribed anti-embolism stockings must have their legs measured and the correct size of stocking fitted to produce a calf pressure of 14-15mmHg
- Stockings should be worn day and night until they no longer have significantly reduced mobility

- Stockings should be removed and the underlying skin condition inspected at least daily. Their use should be discontinued if there is marking, blistering or skin discolouration or if the patient experiences pain or discomfort.

Table 3: Contraindications to anti-embolism stockings:

Peripheral arterial disease: suspected or proven, including peripheral arterial bypass grafting
Peripheral neuropathy or other lower limb sensory impairment
Local skin abnormalities including: fragile skin, dermatitis, gangrene or recent skin graft
Cardiac failure, severe leg oedema or pulmonary oedema from congestive cardiac failure
Unusual leg size or shape or major leg deformity
Patients admitted with a stroke

➢ Step 5: Risk re-assessment

- The risks of VTE and bleeding should be re-assessed 24 hours post admission and the risk assessment documented in the patient's notes.
- Risks of VTE and bleeding should be re-assessed regularly throughout a patient's admission and whenever their clinical condition changes
- At a minimum, re-assessment should be performed **twice weekly**. Patients on critical care should be re-assessed on a daily basis.
- Re-assessments must be documented in the patient's clinical notes.
- **It is particularly important that re-assessment if carried out in patients admitted with acute bleeding episodes as once the bleed has settled these patients are often at increased risk of VTE.**

➢ Step 6: Discharge planning

- All patients should be provided with written and verbal information on discharge including the signs and symptoms of VTE and how to seek help if VTE is suspected. The following text can be selected on the electronic discharge summary:

  Patients who have been admitted to hospital can be at increased risk of blood clots in the veins of the leg or the lung. You can reduce your risk of this as you recover from your admission by ensuring that you keep yourself mobile – being up and about as much as possible and keeping yourself well hydrated. Blood clots can manifest as pain or swelling in a leg; chest pain, dizziness or shortness of breath. Should you develop any of these symptoms please contact your GP. Please contact your GP if your have difficulty re-gaining your normal mobility after discharge.

Extended thromboprophylaxis:

- Some patients remain at significantly increased risk of VTE post discharge and should be considered for extended duration thromboprophylaxis (which continues following discharge from hospital). Dabigatran is the agent of choice following **elective** hip and knee surgery. Tinzaparin is the agent of choice for all other indications.

- Extended thromboprophylaxis should be routinely prescribed to the following patient groups:
    - Elective hip surgery: 28-35 days
    - Elective knee surgery: 10-14 days
    - Fractured neck of femur: 28-35 days
    - Major cancer surgery to abdomen or pelvis – 28 days post-operatively (tinzaparin)
- Extended thromboprophylaxis should be considered in other high risk patients on a case by case basis
- Patients discharged on extended thromboprophylaixs must be provided with the following information on the discharge letter. When completing the discharge letter on ICE click on the section **"Actions for GP"** and select one of the four pre-worded VTE options
    - Correct use and duration of thromboprophylaxis and importance of continuing
    - How to contact the discharging ward if any problems with thromboprophylaixs
    - In patients requiring subcutaneous injections who are unable to self-administer, district nursing or GP practice administration must be organised by the ward/clinical area prior to discharge
    - Please ensure patients going home on subcutaneous injections are provided with a sharps ben and verbal information on the safe management and return of sharps
    - The GP must be notified in the discharge summary

➢ NICE VTE prevention quality standard

The following are NICE VTE prevention quality standard (NICE quality standard 3, 2010):

1. VTE and bleeding risk assessment: all patients on admission receive an assessment of VTE and bleeding risk.
2. Patients/carers are offered verbal and written information on VTE prevention as part of the admission process
3. Patients provided with anti-embolism stockings have them fitted and monitored in accordance with NICE guidelines
4. Patients are re-assessed within 24 hours of admission for risk of VTE and bleeding
5. Patients assessed to be at risk of VTE are offered VTE prophylaxis in accordance with NICE guidance.
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 NICE guidance.

➢ References (evidence upon which the guideline is based)

(1) NICE. Venous thromboembolism: reducing the risk: Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. Clinical Guideline 92. National Institute for Clinical Excellence; 2010.

(2) NICE. Surveillance Review Decision: Cllinical Guideline 92: Venous Thromboembolism: reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. National Institute for Clinical Excellence; 2014.

➢ Compliance with this guideline (how and when the guideline will be monitored e.g. audit and which committee the results will be reported to) Please use the tool provided at the end of this template

See end table

APPENDIX 1: THROMBOPROPHYLAXIS IN EMERGENCY SURGICAL ADMISSIONS

BOX1: RISK FACTORS FOR THROMBOSIS

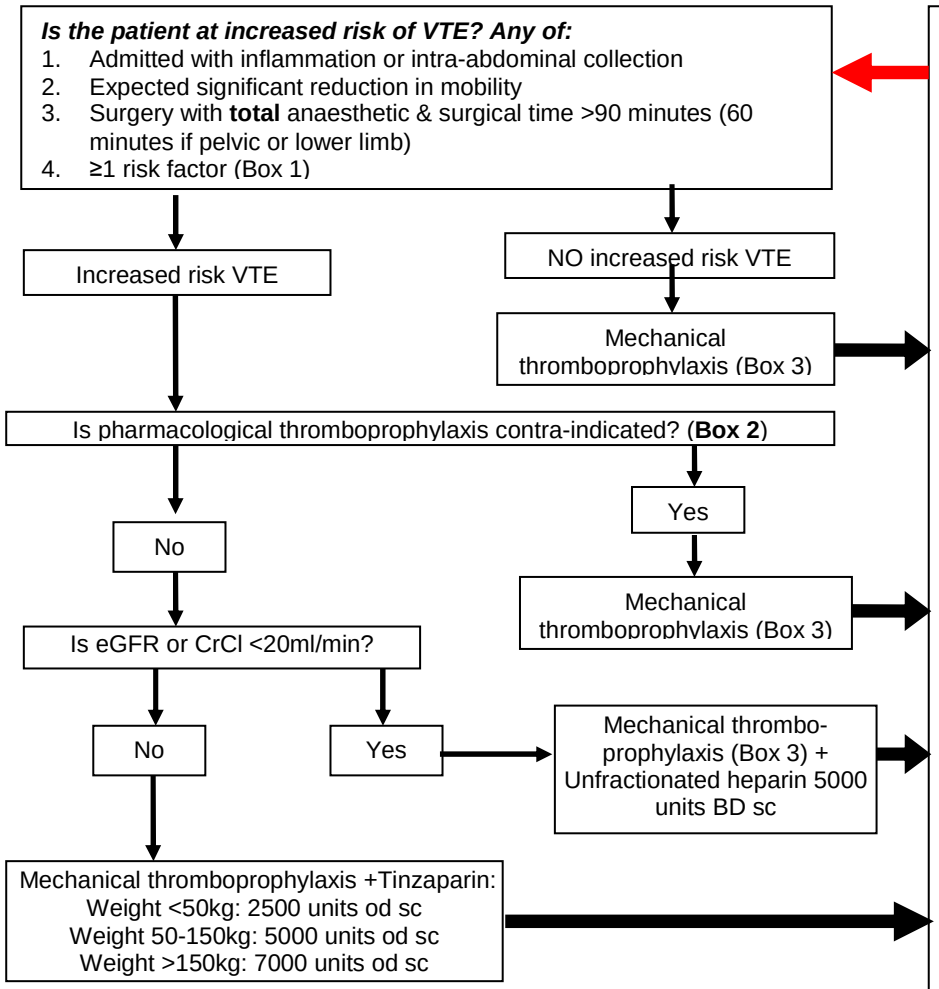
- Age >60 years
- Obesity (BMI >30kg/m^2)
- Personal history or 1st degree relative with history of VTE or Known thrombophilia
- HRT or combined oral contraceptive pill
- Critical care admission
- Dehydration
- Varicose veins with phlebitis
- Active cancer or receiving cancer treatment
- Recent surgery (within 12 weeks)
- Medical comorbidities e.g.: cardio-respiratory disease, inflammatory disorders, diabetes, sickle cell anaemia, thalassaemia, nephrotic syndrome

BOX 2: CONTRAINDICATIONS TO PHARMACOLOGICAL THROMBOPROPHYLAXIS

- Active bleeding
- Thrombocytopenia (platelets <50 x10^9/L)
- Concurrent use of therapeutic anticoagulants (e.g. warfarin with INR>2)
- Lumbar puncture/spinal/epidural anaesthesia within previous 4 hours or expected within 12 hours
- Uncontrolled systolic hypertension (230/120mmHg or higher)
- New stroke
- Known bleeding disorder (*d/w haematology*)
- Previous heparin induced thrombocytopenia (HIT) or allergy to tinzaparin/ heparin ***(must discuss with haematology re alternatives***)

BOX 3: CONTRAINDICATIONS TO TEDS

- Peripheral arterial disease
- Peripheral neuropathy or lower limb sensory impairment
- Fragile skin, dermatitis, gangrene or recent skin graft
- Cardiac failure, severe leg oedema or pulmonary oedema from cardiac failure
- Unusual leg size, shape or major deformity



Pharmacological thromboprophylaxis and timing of surgery:

- If surgery delayed – then start tinzaparin/UFH
- Last dose should be at least 12 hours pre-op
- Re-start 6 hours post-op if surgical team happy with haemostasis
- See Box2 re: epidural/spinal anaesthesia and timings.

APPENDIX 2: ELECTIVE ADMISSIONS FOR SURGERY:

BOX1: RISK FACTORS FOR THROMBOSIS

- Age >60 years
- Obesity (BMI >30kg/m^2)
- Personal history or 1st degree relative with history of VTE or Known thrombophilia
- HRT or combined oral contraceptive pill
- Critical care admission
- Dehydration
- Varicose veins with phlebitis
- Active cancer or receiving cancer treatment
- Recent surgery (within 12 weeks)
- Medical comorbidities e.g.: cardio-respiratory disease, inflammatory disorders, diabetes, sickle cell anaemia, thalassaemia, nephrotic syndrome

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- Uncontrolled systolic hypertension (230/120mmHg or higher)
- New stroke
- Known bleeding disorder (*d/w haematology*)
- Previous heparin induced thrombocytopenia (HIT) or allergy to tinzaparin/ heparin ***(must discuss with haematology re alternatives***)

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- Peripheral arterial disease
- Peripheral neuropathy or lower limb sensory impairment
- Fragile skin, dermatitis, gangrene or recent skin graft
- Cardiac failure, severe leg oedema or pulmonary oedema from cardiac failure
- Unusual leg size, shape or major deformity

Pre-operative assessment:

- Consider use of regional anaesthesia to reduce VTE risk
- If female: consider stopping HRT or combined oral contraceptive pill 4 weeks pre-operatively
- Perform risk assessment – is patient at increased risk of VTE?:
  a. Expected significant reduction in mobility
  b. Surgery with **TOTAL** anaesthetic and surgical time >90 minutes (60 minutes if pelvic or lower limb)
  c. ≥1 risk factor (Box 1)
- Assess for contra-indications to pharmacological thromboprophylaxis (Box 2) and renal function

INPATIENT ADMISSION

Confirm risk assessment
Prescribe mechanical thromboprophylaxis (see Box 3)

Increased risk of VTE

Pharmacological thromboprophylaxis and timing of surgery:

- If surgery delayed & decreased mobility start tinzaparin/UFH
- Last dose should be at least 12 hours pre-op
- Re-start 6 hours post-op if surgical team happy with haemostasis
- See Box2 re: epidural/spinal anaesthesia and timings.

Duration of pharmacological thromboprophylaxis

- Continue until mobility no longer significantly impaired (usually 5-7 days)
- **Extended duration:**
  - Elective knee replacement: 10-14 days
  - Elective hip replacement: 28-25 days
  - Major abdominal or pelvic cancer surgery: 28 days
  - Case by case basis other high risk patients

DAY CASE

Increased risk of VTE → No → No VTE prophylaxis required

Yes

Patient unlikely to mobilise within 2hr post-op (eg lap chole, lap gastric banding) → No → Use ICP device in theatre

Yes

Use ICP device in theatre + TEDS (Box 3)

If patient still in the hospital 6 hours after the end of the operation: give one dose of tinzaparin prior to discharge (Box 2)

Surgery specific recommendations:

- *Bariatric:* local policy = 2500 units tinzaparin 2hr pre-procedure & 2nd dose 2500 units evening post-procedure, then 4500 units daily
- *Urological:* DO NOT GIVE thromboprophylaxis to patients having: transurethral surgery, percutaneous nephrolithotomy or laparoscopic nephron sparing surgery
  - *Elective hip and knee surgery:* Use dabigatran instead of tinzaparin (unless contra-indicated – see Page 7). If dabigatran contra-indicated use tinzaparin instead.

		Yes/No	Comments
1.	**Does the procedural document affect one group less or more favourably than another on the basis of:**		
	• Race	No	
	• Ethnic origins (including gypsies and travellers)	No	
	• Nationality	No	
	• Gender	No	
	• Culture	No	
	• Religion or belief	No	
	• Sexual orientation including lesbian, gay and bisexual people	No	
	• Age	No	
	• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
2.	**Is there any evidence that some groups are affected differently?**	No	
3.	**If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?**	No	
4.	**Is the impact of the procedural document likely to be negative?**	No	
5.	**If so can the impact be avoided?**	N/A	
6.	**What alternatives are there to achieving the procedural document without the impact?**	N/A	
7.	**Can we reduce the impact by taking different action?**	N/A	

If you have identified a potential discriminatory impact of this procedural document, please refer it to the Director of Human Resources, together with any suggestions as to the action required to avoid/reduce this impact.

For advice in respect of answering the above questions, please contact the Director of Human Resources.

Checklist for the Review and Approval of Procedural Document

To be completed and attached to any procedural document when submitted to the relevant committee for consideration and approval.

	Title of document being reviewed:	Yes/No	Comments
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Is it clear that the relevant people/groups have been involved in the development of the document?	Yes	
	Are people involved in the development?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
5.	**Evidence Base**		
	Are key references cited in full?	N/A	
	Are supporting documents referenced?	N/A	
6.	**Approval**		
	Does the document identify which committee/ group will approve it?	Yes	
7.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	Yes	
8.	**Document Control**		
	Does the document identify where it will be held?	Yes	
9.	**Process to Monitor Compliance and Effectiveness**		
	Are there measurable standards or KPIs to support the monitoring of compliance with and	Yes	

	Title of document being reviewed:	Yes/No	Comments
	effectiveness of the document?		
	Is there a plan to review or audit compliance with the document?	Yes	
10.	**Review Date**		
	Is the review date identified?	Yes	
	Is the frequency of review identified? If so is it acceptable?	Yes	
11.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes	

Executive Sponsor Approval			
If you approve the document, please sign and date it and forward to the author. Procedural documents will not be forwarded for ratification without Executive Sponsor Approval			
Name		Date	
Signature			
Relevant Committee Approval			
The Director of Nursing and Patient Experience's signature below confirms that this procedural document was ratified by the appropriate Governance Committee.			
Name		Date	
Signature			
Responsible Committee Approval – only applies to reviewed procedural documents with minor changes			
The Committee Chair's signature below confirms that this procedural document was ratified by the responsible Committee			
Name		Date	
Name of Committee		Name & role of Committee Chair	
Signature			

Tool to Develop Monitoring Arrangements for Policies and guidelines

What key element(s) need(s) monitoring as per local approved policy or guidance?	Who will lead on this aspect of monitoring? Name the lead and what is the role of the multidisciplinary team or others if any.	What tool will be used to monitor/check/observe/Assess/inspect/ authenticate that everything is working according to this key element from the approved policy?	How often is the need to monitor each element? How often is the need complete a report ? How often is the need to share the report?	What committee will the completed report go to?
Element to be monitored	**Lead**	**Tool**	**Frequency**	**Reporting arrangements**
% of patients receiving risk assessments in pre-operative assessment	**VTE CQUIN lead**		**Quarterly**	**Thrombosis Committee**
% of patients receiving risk assessment on admission	**VTE CQUIN lead**		**Monthly**	**VTE working group**
Bleeding complications in patients receiving thromboprophylaxis	**Thrombosis lead**		**6 monthly**	**Thrombosis Committee**