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CUH
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Thromboprophylaxis Guidelines for Adult Patients in:

Medicine, Haematology & Oncology, Intensive Care Unit, Surgery, Orthopaedics, Major Trauma.

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1. Thromboprophylaxis Guidelines

This guideline applies to patients admitted to Cork University Hospital (CUH), **NOT** including Cork University Maternity Hospital (CUMH), which has its own specific guidelines for pregnant patient (please see separate guideline for pregnant patients).

1.1 Inclusion Criteria

Adults (18 years and older) admitted to hospital as inpatient or admitted for day-case procedures. Including

1.1.1 In-patients with acute medical illnesses
1.1.2 Surgical inpatients including trauma
1.1.3 Cancer patients
1.1.4 Patients admitted to intensive care unit
1.1.5 Patients admitted for day-case surgical or medical procedures
1.1.6 Orthopaedic patients

1.2 Exclusion Criteria

1.2.1 Patients younger than 18 years
1.2.2 Patients attending the hospital as an outpatients
1.2.3 Patients presenting to emergency department and acute medical assessment unit who are not admitted
1.2.4 Patients admitted to the hospital with a diagnosis or suspected diagnosis of deep venous thrombosis (DVT) or pulmonary embolism (PE)

1.3 Targeted Professional Groups

1.3.1 All NCHDs responsible for the care of these patients
1.3.2 All consultants responsible for the care of these patients
1.3.3 All preoperative nurses planning patients admission to hospital
1.3.4 All pharmacists reviewing drug kardexes on the wards
1.3.5 All anticoagulation nurses
1.3.6 All ward staff nurses

2. Introduction

Venous thromboembolism (VTE), which includes deep vein thrombosis (DVT) and pulmonary embolism (PE), is a major cause of preventable morbidity and mortality in hospitalized patients[1-4]. Hospital Acquired Thrombosis (HAT) has been defined as any VTE event occurring during or within 90 days of hospitalisation[5]. Acute VTE has an annual incidence of approximately 1-2 per 1,000 persons in the general population. However, this relative risk of VTE increases up to 8 fold in hospitalised medical patients, and to more than 100 fold for surgical patients[6]. This augmented risk persists up to 90 days post admission[5].

Prior to introduction of a national VTE prevention programme in the United Kingdom in 2010, it was estimated that more than 25,000 hospital deaths occurred annually from VTE[7]. HAT leads to a mortality rate that is greater than the combined total deaths from breast cancer, AIDS, prostate cancer and road traffic accidents[6]. VTE is responsible for the death of more than 500,000 people in Europe each year and is the third leading cause of death from cardiovascular causes after myocardial infarction and stroke[8].

3. Pathogenesis and natural history of the VTE

Thrombus formation and propagation depends on the presence of at least one of the etiologic factors as suggested by Rudolph Virchow in 1884: stasis of blood flow, vascular endothelial damage, and hypercoagulability of blood, collectively known as Virchow's triad.

Vessel wall injury and venous stasis leads to thrombus formation, which originate at the vessel valve pocket. The symptoms of VTE are caused by obstruction of venous outflow by thrombi, causing inflammation of the vein wall, inflammation of the surrounding tissue or embolisation into the pulmonary circulation[9]. DVT commonly presents with pain, erythema, tenderness and swelling of the affected limb. Clinical signs will show the circumference of the affected limb as larger than the unaffected side. Ruling out other causes for the same clinical presentation will depend on the presence or absence of risk factors for VTE. A two-level DVT Wells score helps to stratify patients for appropriate diagnosis[10].

Patients presenting with acute pulmonary embolism often complain of sudden onset of shortness of breath with haemoptysis and pleuritic chest pain. These patients can also present with collapse and shock. Similar to DVT a clinical probability model for PE has been developed and is called the two-level PE Wells score[11].

Following treatment, the resolution of DVT is slower than PE. Complete resolution occurs more frequently in PE rather than DVT, where recanalisation is more common[12]. The risk of recurrence is higher in unprovoked VTE where risk factors are not yet established. The presence of persistent risk factors like cancer and anti-phospholipid syndrome also increase the recurrence compared to patients with transient risk factors like surgery. Long term complications of VTE include recurrent VTE, post thrombotic syndrome and chronic pulmonary hypertension.

4. Risk factors for developing VTE

Risk factors for developing VTE in patients admitted in medical specialities are different than for those admitted for surgical or orthopaedic procedures. Medical patients often have multiple co-morbidities and increased incidence of renal and hepatic dysfunction. According to the UK National Institute for Health and Care Excellence guidelines[13], **all patients admitted to hospital should be risk assessed for VTE on admission, reassessed after 24 hours**, **and after any change in clinical situation, as well as at the time of discharge**. In the case where a patient has one or more risk factors for VTE they should receive thromboprophylaxis.

4.1 Risk Factors for VTE (Patient Related) Box.1

Patient Related Risk Factors for VTE

- **Active cancer or cancer treatment**
- **Age > 60yr**
- **Dehydration**
- **Known thrombophilias**
- **Obesity (BMI >30kg/m^2)**
- **One or more significant medical co morbidities (e.g. heart disease, metabolic, endocrine or respiratory pathologies, acute infectious diseases, inflammatory conditions)**
- **Personal history or first-degree relative with a history of VTE**
- **Use of hormone replacement therapy (HRT)**
- **Use of oestrogen-containing contraceptive therapy**
- **Varicose veins with phlebitis**
- **Pregnancy or < 6 weeks post-partum**

For women who are pregnant or have given birth within previous 6 weeks (see separate guidelines for prevention of venous thrombosis in pregnancy)

4.2 Admission Related Risk Factors

- Significant reduced mobility relative to normal state for >3 days
- Total anaesthetic + surgical time > 90 minutes
- Surgery involving pelvis or lower limb and total anaesthetic + surgical time > 60 minutes
- Acute surgical admission with inflammatory or intra-abdominal condition
- Surgery with significant reduction in mobility
- Hip or knee replacement
- Hip fracture
- Critical care admission

4.3 Risk factors for bleeding

Assessment of all patients for risk of bleeding before offering pharmacological VTE prophylaxis is advised. No pharmacological VTE prophylaxis should be given to patients with any of the risk factors for bleeding unless the risk of VTE outweighs the risk of bleeding.

Risk Factors for Bleeding Box.2

Risk Factors for Bleeding

- **Active bleeding**
- **Acquired bleeding disorders (such as acute liver failure)**
- **Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin patient with INR higher than 2) or patients on Non vitamin k Oral Anti-Coagulants (NOACs)**
- **Lumbar puncture/epidural/spinal anaesthesia expected within the next 12 hours, or epidural catheter removed within last 4 hours**
- **Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours**
- **Acute stroke**
- **Thrombocytopenia (platelets less than 75 x 10^9/L)**
- **Uncontrolled systolic hypertension (230/120 mmHg or higher)**
- **Inherited bleeding disorders (such as haemophilia and Von Willebrand's disease)**

- **Assess all patients for risk of bleeding before offering pharmacological VTE prophylaxis.**
- Do not offer pharmacological VTE prophylaxis to patients with any risk factors for bleeding as shown in box.2, unless risk of VTE outweighs the risk of bleeding
- Consider discussion with haematology team if unclear regarding risk

4.4 Reassess patient's risks of bleeding and VTE

Within 24 hours of admission, whenever the clinical situation changes and at discharge to:

1. Ensure that the methods of VTE prophylaxis being used are suitable
2. Ensure that VTE prophylaxis is being used correctly
3. Identify adverse events resulting from VTE prophylaxis

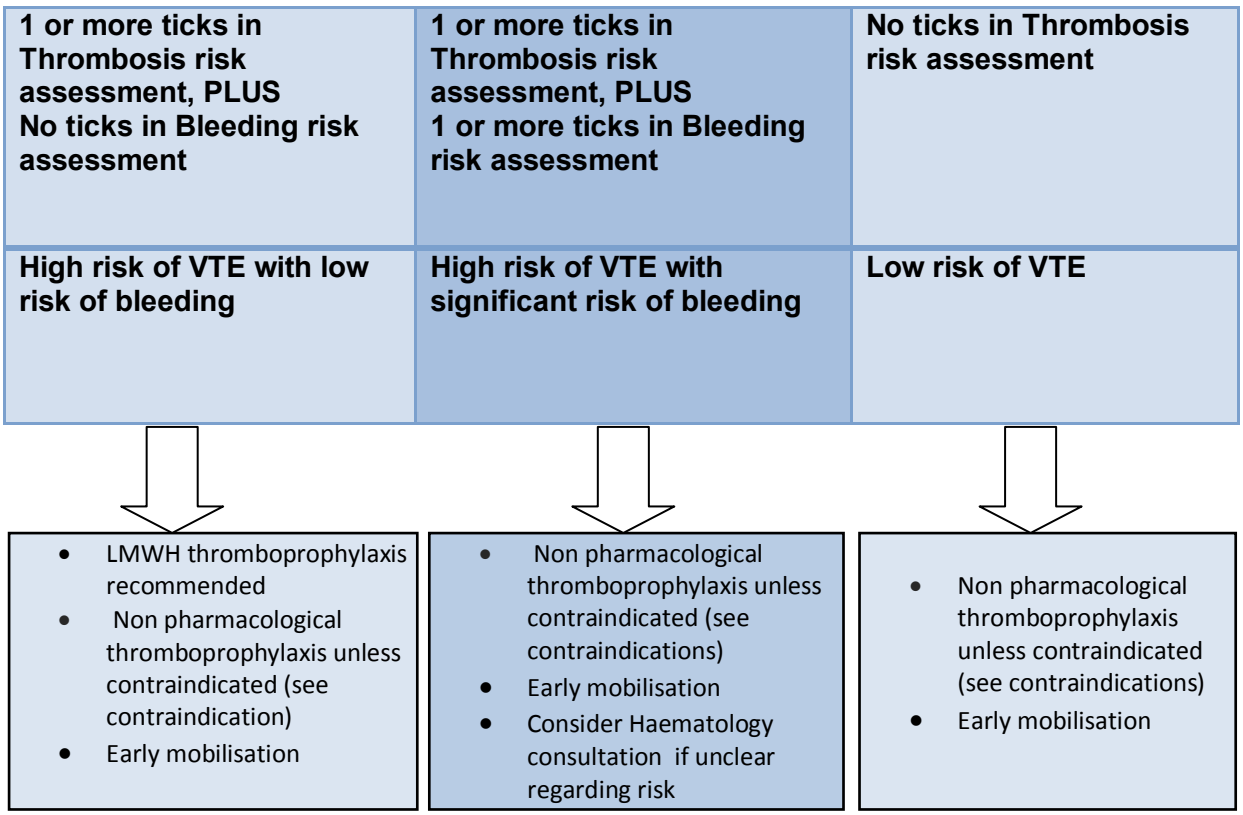
Assess the risk of VTE and bleeding of all hospitalised patients:

- **At the time of admission**
- **Within 24 hours of admission**
- **Whenever a change occurs in clinical situation**
- **At discharge**

5. Important points to remember

- Do not allow patients to become dehydrated unless clinically indicated
- Encourage patients to mobilise as soon as possible
- Do not regard aspirin or other antiplatelet agents as adequate thromboprophylaxis for VTE
- Consider offering **temporary inferior caval filters** to patients who are at very high risk of VTE (such as patients with previous VTE event within the last month or an active malignancy) and for whom mechanical and pharmacological VTE thromboprophylaxis are contraindicated

6. Risk Stratification



7. Modalities available for VTE prophylaxis

VTE is an important cause of death in hospitalised patients and the economic burden of the disease is considerable in developed countries. An estimate of the combined direct and indirect cost of VTE in the UK is now placed at 640 million pounds annually and the cost will further increase when long term complications like post thrombotic syndromes are taken into consideration[6]. Therefore, it is highly recommended that efforts should be made to prevent the occurrence of VTE by risk assessing all hospitalised patients and offering them thromboprophylaxis as appropriate. Early mobilisation and adequate hydration are simple measures that should be applied to prevent VTE in all patients. However, more specific thromboprophylaxis measures are available namely mechanical methods and pharmacological type.

7.1 Mechanical thromboprophylaxis

Mechanical thromboprophylaxis serves as the preferred alternative in patients who are ineligible for pharmacologic therapy but are at high risk in developing VTE. These methods also serve as a valuable adjunct to pharmacological methods in others.

Currently available mechanical thromboprophylaxis methods include

7.1.1 Graduated compression stockings (GCS)

For patients prescribed GCS

- Ensure that patients who need graduated compression stockings (GCS) have their legs measured and that the correct size of stocking is provided. GCS should be fitted and patients shown how to use them by staff trained in their use.
- Ensure that patients who develop oedema or postoperative swelling have their legs re-measured and GCS refitted.
- If arterial disease is suspected, seek expert opinion before fitting GCS.
- Use GCS that produce a calf pressure of 14-15 mm Hg.
- Encourage patients to wear their GCS day and night until they no longer have significantly reduced mobility.
- Remove GCS daily for hygiene purposes and to inspect skin condition. In patients with a significant reduction in mobility, poor skin integrity or any sensory loss, inspect the skin two or three times per day, particularly over the heels and bony prominences.
- Discontinue the use of GCS if there is marking, blistering or discolouration of the skin, particularly over heels and bony prominences, or if the patient experiences pain or discomfort. If suitable offer a venous foot pump device (VFPD) or Intermittent pneumatic compression devices (IPCD) as an alternative.
- Show patients how to use GCS correctly and ensure they understand that this will reduce their risk of developing VTE.
- Monitor the use of GCS and offer assistance if they are not being worn correctly.

Contraindications to graduated compression stockings

- Massive leg oedema
- Pulmonary oedema (heart failure)
- Peripheral vascular and Arterial disease
- Peripheral neuropathy
- Dermatitis
- Major leg deformity
- Post Vascular Surgery, including: angiogram and/or plasty, repair of Abdominal Aortic Aneurysm (AAA), Endovascular Aneurysm Repair (EVAR) reconstructive arterial bypass surgery, carotid, endarterectomy and amputation
- Acute ischaemic foot including rest pain, gangrene, ulceration
- Fragile" tissue paper" skin
- Pressure sore to heels
- Acute or recent stroke
- Thigh circumference that exceed the size specified in the fitting instructions for the GCS being used
- Known allergy to material of manufacture

7.1.2 Intermittent pneumatic compression devices (IPCD)

- Known allergy to the material of manufacture is a contraindication to IPCD
- IPCD use should be encouraged as much as possible, both in bed and when sitting in a chair.

7.1.3 Venous foot pump devices (VFPD)

- Known allergy to the material of manufacture is a contraindication to VFPD
- VFPD use should be encouraged as much as possible, both in bed and when sitting in a chair.

7.2 Pharmacological thromboprophylaxis

Different pharmacological agents described below are available for thromboprophylaxis and their effectiveness varies depending upon the clinical procedure and patient related risk factors.

- Unfractionated heparin (UFH)
- Low molecular weight heparin (LMWH)
    1. Tinzaparin
    2. Enoxaparin
- Novel oral anticoagulants (NOACs)
    1. Rivaroxaban
    2. Apixaban
    3. Dabigatran
- Fondaparinux

LMWHs produced by various methods of depolymerisation of standard unfractionated heparin (UFH) have become the standard first line thromboprophylaxis agents. LMWHs have proven to be more efficacious in preventing VTE without increasing risk of bleeding in comparison with UFH[14]. Side effects such as injection site haematoma, heparin induced thrombocytopenia and osteoporosis are less likely with LMWHs as compared to UFH. NOACs have been approved for thromboprophylaxis following orthopaedic surgery. Fondaparinux, a synthetic pentasaccharide indirectly inhibits factor Xa and has been shown to be effective in all cases of thromboprophylaxis i.e. medical, surgical and orthopaedic patients.

The current agent of choice in Cork University Hospital is LMWH. Tinzaparin is the preferred LMWH currently formulary.

7.2.1 Tinzaparin (CUH choice)

- Tinzaparin 4500 IU daily (higher VTE risk)
- Tinzaparin 3500 IU daily (lower VTE risk or moderate renal impairment)
- Tinzaparin 2500 IU daily (severe renal impairment)

7.2.2 Enoxaparin (non formulary)

- Enoxaparin 40 mg daily or
- Enoxaparin 20 mg daily (for moderate renal impairment with eGFR15-30ml/min/1.73m^2)

7.2.3 UFH

- UFH may be chosen for patients with very severe renal impairment (eGFR<15 ml/min/1.73m^2)
- UFH dose is 5000 units bd

8. Timing of regional anaesthesia / analgesia

8.1 UFC (subcutaneous)

- Wait at least 4 hours after a dose before block or catheter removal
- Wait at least 1 hour before dosing after procedure (catheter insertion or withdrawal)

8.2 UFH (intravenous)

- Stop infusion 2-4 hours before block
- Start infusion >1 hour after block
- Remove epidural catheter no sooner than 2-4 hours after discontinuation of infusion

8.3 LMWH

- Wait at least 12 hours after a prophylaxis dose before block
- Wait at least 24 hours after a therapeutic dose before block
- Wait at least 10 hours after dose before removing catheter
- After catheter removal wait 2-4 hours before next dose

9. Monitoring for heparin induced thrombocytopenia (HIT)

All patients receiving pharmacological thromboprophylaxis must have a full blood count performed on admission. Patients who have received UFH, should have platelet count monitored every 3-5 days. Patients on LMWH prophylaxis only (have not received UFH) do not need routine HIT monitoring, unless a thrombotic event occurs. If the platelet count falls by 30-50% or to less than $150x10^9$/L, and/or the patient develops new signs of thrombosis, suspect HIT: contact haematology for advice. Patients discharged from hospital on LMWH only require HIT monitoring if they have received unfractionated heparin (prophylactic or treatment doses) within the last 90 days.

10. Patients with renal impairment on thromboprophylaxis with Tinzaparin

Caution is recommended when treating patients with renal impairment[15]. Monitoring of anti-factor Xa activity may be considered *(*it remains a poor predictor of haemorrhage risk*)* in patients with severe renal impairment (creatinine clearance < 30 ml/min); however, available evidence suggests that no dose reduction is needed in patients with creatinine clearance levels down to 20 ml/min. Elderly patients' renal function should be assessed, no dose reduction is needed in elderly patients with normal renal function.

11. Obese patients (overweight) on thromboprophylaxis with Tinzaparin

In case of obese (over weight) patients with increased risk of VTE, a weight adjusted dose of tinzaparin such as 75 IU/kg should be considered.

12. Thromboprophylaxis in medical patients

12.1 General medical patients

- Offer pharmacological VTE prophylaxis to general medical patients assessed to be at high risk of VTE.
- Start pharmacological VTE prophylaxis as soon as possible after risk assessment has been completed.
- Continue until the patient is no longer at increased risk of VTE.

12.2 Patients with stroke

- Do not offer anti-embolism stockings for VTE prophylaxis to patients who are admitted for stroke, these have been shown to be ineffective and put the patient at increased risk of cutaneous adverse reactions such as skin ulcers and necrosis.
- Consider offering prophylactic LMWH dose if
    1. A diagnosis of haemorrhagic stroke has been excluded and
    2. The risk of bleeding (haemorrhagic transformation of stroke or bleeding in to another site) is assessed to be low.
    3. The patient has one or more of
        - Major restriction of mobility
        - Previous history of VTE
        - Dehydration
        - Co morbidities (such as malignant disease)

    Continue until the acute event is over and the patient's condition is stable.
- Until the patient can have pharmacological VTE prophylaxis, consider offering a foot impulse or intermittent pneumatic compression device.

12.3 Patients with cancer

- Offer pharmacological VTE prophylaxis to patients with cancer who are assessed to be at high risk of VTE
- Start pharmacological VTE prophylaxis as soon as possible after risk assessment has been completed.
- Do not routinely offer pharmacological or mechanical VTE prophylaxis to patients with cancer having oncological treatment who are ambulant.

12.4 Patients with central venous catheters

- Do not routinely offer pharmacological or mechanical VTE prophylaxis to patients with central venous catheters who are ambulant.
- Consider offering pharmacological VTE prophylaxis to patients with central venous catheters who are assessed to be at high risk of VTE

12.5 Patients in palliative care

- Consider offering pharmacological VTE prophylaxis to patients in palliative care who have potentially reversible acute pathology. Take in to account potential risks and benefits and the views of patients and their families and/or carers.
- Do not routinely offer pharmacological or mechanical thromboprophylaxis to patients admitted for terminal care or those commenced on an end of life care path way.
- Review decisions about VTE prophylaxis for patients in palliative care daily, taking in to account the views of patients, their families and/or carers and the multidisciplinary team.

12.6 Geriatric patients

The following issues in geriatric medicine require special consideration[17]

- Many older patients are confused, either from delirium or dementia, and will be unable to give consent to treatment. Thus the geriatric medical team must assume responsibility of making a best interests judgement on the value of treatment on behalf of the patient.
- The skin in older people is frequently more fragile, and easily bruised. Older people are probably more likely to suffer from local bruising and minor haemorrhages at the injection site or the use of graduated compression stockings. This may cause pain and discomfort, in a patient who is perhaps unable to understand the reason for the treatment, and this may undermine rehabilitation.
- Some patients are near end-of-life where their admission and treatment have goals of relieving symptoms and not necessarily prolonging life. For these people, injections may be an additional unwelcome burden.
- There may be accumulation of LMWH in moderate to severe renal failure consider reducing prophylactic dose if eGFR is <20 mls/min.
- Patients who are usually immobile do not require thromboprophylaxis unless they have an additional illness.
- Patients who are at risk of multiple falls will have an enhanced risk of bruising from pharmacological thromboprophylaxis.
- Mortality risk from PE and major haemorrhage are both increased in older people.
- Graduated compression stockings should be used with caution and skin integrity must be carefully and regularly monitored at least daily.

12.7 Intensive care unit (ICU)

- Assess all patients on admission to ICU for their risk of VTE (see Box-1) and bleeding risk (see Box-2). Reassess patient's risks of VTE and bleeding daily and more frequently if their clinical condition is changing rapidly.
- Offer VTE prophylaxis to patients admitted to the critical care unit according to the reason for admission, taking in to account
    1. Any planned intervention
    2. The use of other therapies that may increase the risk of complications.
- Review decisions about VTE prophylaxis for patients in critical care daily and more frequently if their clinical condition is changing rapidly. Take in to account the known views of the patient, comments from their family and/or carers and the multidisciplinary team.

13. Thromboprophylaxis in Surgical patients

13.1 All surgery

- Advise patients to consider stopping oestrogen-containing oral contraceptives or hormone replacement therapy 4 weeks before elective surgery. If stopped, provide advice on alternative contraceptive methods.
- For patients with cancer on Tamoxifen or other hormonal treatments, who are at increased risk of developing VTE, consult the physician who started the treatment before stopping.
- Assess the risks and benefits of stopping pre-existing established antiplatelet therapy 1 week before surgery. Consider involving multidisciplinary team in the assessment.
- Consider regional anaesthesia for individual patients, in addition to other methods of VTE prophylaxis, as it carries a lower risk of VTE than general anaesthesia. Take into account patients' preferences, their suitability for regional anaesthesia and any other planned method of VTE prophylaxis.
- If regional anaesthesia is used, plan the timing of pharmacological VTE prophylaxis to minimise the risk of epidural haematoma. If antiplatelet or anticoagulant agents are being used, or their use is planned, refer to the summery of product characteristics for guidance about the safety and timing of these agents in relation to the use of regional anaesthesia.
- Do not routinely offer pharmacological or mechanical VTE prophylaxis to patients undergoing a surgical procedure with local anaesthesia by local infiltration with no limitation of mobility.
- Continue thromboprophylaxis until the patient is no longer at increased risk of VTE.

13.2 Cardiac surgery

- Offer VTE thromboprophylaxis to patients undergoing cardiac surgery who are not having other anticoagulation therapy and are assessed to be at increased risk of VTE.
- Start mechanical VTE prophylaxis at admission. Continue until the patient no longer has significantly reduced mobility.
- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking in to account individual patient factors and according to clinical judgement.

13.3 Gastrointestinal, Bariatric, Thoracic and Urological surgery

- Offer VTE prophylaxis to patients undergoing gastrointestinal, bariatric, thoracic and urological surgery who are assessed to be at increased risk of VTE.
- Start mechanical VTE prophylaxis at admission. Continue until the patient no longer has significantly reduced mobility.
- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking in to account individual patient factors and according to clinical judgement
- Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility (generally 5-7 days)
- Extend pharmacological VTE prophylaxis to 28 days postoperatively for patients who have had cancer surgery in the abdomen or pelvis.

13.4 Neurosurgery (cranial or spinal)

- Offer VTE prophylaxis to patients undergoing cranial or spinal surgery who are assessed to be at increased risk of VTE
- Start mechanical VTE prophylaxis at admission. Continue until the patient no longer has significantly reduced mobility
- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking in to account individual patient factors and according to clinical judgement
- Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility (generally 5-7 days)
- Do not offer pharmacological VTE prophylaxis to patients with ruptured cranial or spinal vascular malformations (for example, brain aneurysm) or acute traumatic or non traumatic haemorrhage until the lesion has been secured or the condition is stable

14. Thromboprophylaxis in Orthopaedic patients

- All patients admitted with lower limb or pelvic fractures should receive DVT prophylaxis (unless the patient is already anticoagulated or actively bleeding).
- Patients with previous DVT or additional risk factors for thrombo-embolic disease (e.g. cancers, coagulaopathy) are also likely to need DVT prophylaxis.
- Seek Consultant advice before commencing in spinal trauma patients.
- Tinzaparin 4,500 iu od for younger patients with normal renal function.
- Tinzaparin 3,500 iu od for older, frailer patients with lower BMI.
- If poor renal function (GFR <20ml/min) – Tinzaparin 2500 iu od.
- Prophylaxis prescription time 18.00 hours The timing is important to ensure there are at least 12 hours between a dose of prophylactic anticoagulation and surgery.
- If a patient is on full dose Tinzaparin or Clexane then the last dose should be given at least 24 hours before surgery (seek senior or medical advice as needs be).

15. Other patient groups

15.1 Major trauma

- Offer combined VTE prophylaxis with mechanical and pharmacological methods to patients with major trauma. Regularly reassess the patient's risks of VTE and bleeding.
- Start mechanical VTE prophylaxis at admission or as early as clinically possible. Continue until the patient no longer has significantly reduced mobility.
- If benefits of reducing the risk of VTE outweigh the risk of bleeding (see box.2) and the bleeding risk has been established as low, add pharmacological VTE.
- Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility.

15.2 Spinal injury

- Offer combined VTE prophylaxis with mechanical and pharmacological methods to patients with spinal injury. Regularly reassess the patient's risks of VTE and bleeding.
- Start mechanical VTE prophylaxis at admission or as early as clinically possible. Continue until the patient no longer has significantly reduced mobility.
- If benefits of reducing the risk of VTE outweigh the risk of bleeding (see box.2) and the bleeding risk has been established as low, add pharmacological VTE.
- Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility.

15.3 Lower limb plaster cast

- Consider offering pharmacological VTE prophylaxis to patients with lower limb plasters after evaluating the risks (see box.1) and benefits based on clinical discussion with the patient.
- Continue until lower limb plaster removal.

15.4 Patients taking antiplatelet agents or anticoagulants on admission or needing them for treatment

- Consider additional pharmacological VTE prophylaxis to patients who are taking one but not two antiplatelet agents to treat other conditions and who are assessed to be at increased risk of VTE.
- Consider additional mechanical prophylaxis/pharmacological VTE prophylaxis to patients who are taking two antiplatelet agents to treat other conditions who assessed to be at increased risk of VTE, taking in to account individual patient factors and according to clinical judgement
- Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are taking vitamin K antagonists and who are within their therapeutic range, provided anticoagulant therapy is continued.
- Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are having full anticoagulant therapy.

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