### Related Trust Policies (to be read in conjunction with)

- 08014 Venous thromboembolism (VTE) risk assessment and thromboprophylaxis in maternity
- 08033 Thromboprophylaxis and treatment during labour and delivery including Caesarean Section
- 12007 Management of Women with a venous thromboembolism (VTE), deep vein thrombosis,( DVT) or pulmonary embolism (PE) during Antenatal and Postnatal Period
- 16005 Peri-procedural anticoagulation in Adult patients taking Warfarin and novel oral anti-coagulants (NOACS)
- 08092 Mandatory Training Policy
- 04080 Consent to examination or treatment Policy
- 08086 Clinical Recording Keeping Standards
- 08076 Clinical Audit Strategy and Policy

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1.0 Purpose

1.1 This policy has been developed to ensure standardisation of best practice across Mid Essex Hospital Services NHS Trust in the prevention and management of Venous Thromboembolism (VTE) in hospitalised patients.

1.2 This guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

1.3 This guideline informs all Trust clinicians of the high incidence of VTE in hospital patients.

1.4 This guideline provides guidance to all healthcare professionals on reducing the incidence of VTE in hospital patients.

1.5 It provides guidance on risk assessment for VTE for all admitted patients’ admissions.

1.6 It provides general guidance on prophylaxis for reducing the risk of venous thromboembolism.

2.0 Background

2.1 VTE causes more deaths than the combined mortality from breast cancer, road traffic accidents, MRSA and AIDS (25,000 deaths from VTE a year in hospitals in England). Without thromboprophylaxis, one in seven hospitalised patients may develop a deep vein thrombosis (DVT) or pulmonary embolism (PE). Approximately ten per cent of hospital deaths are caused by pulmonary embolism (PE). Reducing death, disability and chronic ill health from VTE was set as a clinical priority for the NHS in 2010/11.

2.2 The policy incorporates recommendations from the:

- The House of Commons Health Committee report on the ‘Prevention of Venous Thromboembolism in hospitalised patients (February 2005);
- The Government Response to the Health Committee Report (July 2005);
- NICE guidance NG89: Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism – published 21 March 2018.

2.3 This version supersedes any previous versions of this document and should be used in conjunction with MEHT policies and procedures as stated on the front sheet.

3.0 Scope

3.1 This policy applies to all permanent, locum, agency and bank clinical staff regardless of grade or profession involved in patient assessment, treatment and care in all patient areas. This includes emergency, elective and day case areas. All professional groups are
accountable to their professional bodies at all times.

4.0 Definitions / Glossary

- **Adult** - from aged 16 years
- **AED** - Anti-embolism Devices
- **AF** - Atrial Fibrillation
- **BNF** - British National Formulary: publication of the BMA and the Royal Pharmaceutical Society of Great Britain. (Cross references given in italics)
- **APTT** - Activated Partial Thromboplastin Time
- **DOAC** – Direct Oral Anticoagulant (previously known as NOAC)
- **DVT** - Deep Venous Thrombosis
- **INR** - International Normalised Ratio (based on the prothrombin time)
- **IPC** – Intermittent Pneumatic compression
- **IV** – Intravenous
- **IU** - International Units
- **MS** - Mitral Stenosis
- **LMWH** - Low Molecular Weight Heparin
- **LVF** - Left Ventricular Failure
- **PE** - Pulmonary Embolus
- **PT** - Prothrombin Time
- **SC** - Sub-Cutaneous
- **TIA** - Transient Ischaemic Attack
- **UF** - Unfractionated (sic heparin)
- **VTE** - Venous Thrombo-embolic Disease

*Antiphospholipid Syndrome* - an acquired thrombophilic state associated with auto-antibodies against phospholipids, diagnosed by the in vitro finding of abnormal phospholipid dependent coagulation assays (i.e. lupus anticoagulant) and, or anticardiolipin antibodies on immuno-assay

*Bio-prosthetic heart valve* - a non-human tissue valve implant

*Proximal DVT* - ileo-femoral thrombosis i.e. "above knee"

*Recurrence* - three or more episodes

*Thrombophilia* - inherited or acquired disorders of the haemostatic system that may result in an increased risk of thrombosis.

5.0 Policy

5.1 In 2005 a House of Commons Health Committee report identified that 25,000 hospital patients in England die each year from VTE and that many of these deaths are preventable. As recommended in this report, it is MEHT policy that:

- All medical and surgical patients should be counselled for VTE risk on admission to hospital and should be risk assessed for VTE to determine appropriate prophylaxis
- All physicians and surgeons should be informed if their patients suffer VTE after discharge from hospital
6.0 Equality Impact Assessment

6.1 Mid Essex Hospital Services NHS Trust is committed to providing a service that is fair, accessible and meets the needs of all individuals.
(Refer to Appendix 5)

7.0 Roles and Responsibilities:

7.1 Thrombosis Group - the Thrombosis Group has been established with a multi-disciplinary representation as recommended by the DOH. The group has the following remit:

- To promote best practice through local policies based on National Guidance;
- Lead multi professional audit of the use of thromboprophylaxis and develop and monitor the implementation of any required actions;
- Promote education and training within MEHT;
- Review adverse incidents or near misses involving VTE as reported via the Datix system;
- Report to the Patient Safety Group.

7.2 Role of the Senior Line Managers:

- Supporting professional non-professional groups involved in VTE pathways with resources that enable all aspects of Thrombosis and Anticoagulation – including VTE and bleeding risk assessment and data capture to be performed to the standards as set in this policy;
- Monitoring performance of VTE and bleeding risk assessment and taking action to address low performance.

7.3 Role of the Matrons, Ward Sisters and Charge Nurses:

- Ensuring members of their teams are competent to ensure effective VTE assessment is undertaken where appropriate;
- Ensuring members of their teams are knowledgeable and competent in the management of VTE prophylaxis or treatment if positive diagnosis is present.

7.4 Role of the Senior Clinicians / Consultants:

- Ensuring junior colleagues are knowledgeable and competent in VTE assessment, prophylaxis and management;
- Monitoring performance of VTE and bleeding risk assessment and taking action where required.

7.5 Role of Medical Staff:

- Taking a comprehensive patient medical history and completing VTE and bleeding risk assessment and arranging appropriate prophylaxis and/or treatment as per policy content;
- Completing the appropriate VTE risk assessment tool on VitalPAC;
- Reviewing the patient and / or prescribed medication within or at 24 hours and when condition changes occur;
• Considering further investigation and treatment where appropriate;
• Have a working knowledge of the management of suspected VTE and when a positive diagnosis has been made.

7.6 **Role of Individual Staff Members:**

• Taking positive steps to ensure the appropriate patient VTE assessment is completed accurately;
• Ensuring any actions identified through monitoring and evaluations are undertaken;
• Ensuring that any HA VTE incidents linked with VTE assessment, prophylaxis or management are reported using the Trust's incident reporting procedure (DATIX).

8.0 **Risk Assessment for VTE**

(Refer to the following guidance in relation to Maternity Services: 08014 Venous thromboembolism (VTE) risk assessment and thromboprophylaxis in maternity; 08033 Thromboprophylaxis and treatment during labour and delivery including Caesarean Section;

8.1 **People admitted to Hospital**

8.1.2 Assess all medical and surgical patients to identify the risk of VTE and bleeding:

• As soon as possible after admission to hospital or by the time of the first consultant review;
• Using a tool published by a national UK body, professional network or peer reviewed journal. The most commonly used risk assessment tool for medical patients is the Department of Health VTE risk assessment tool (available at: [https://www.nice.org.uk/guidance/ng89/resources/department-of-health-vte-risk-assessment-tool-pdf-4787149213](https://www.nice.org.uk/guidance/ng89/resources/department-of-health-vte-risk-assessment-tool-pdf-4787149213)).

8.2 **Reassessment of risk of VTE and bleeding**

Reassess all medical, surgical and trauma patients for risk of VTE and bleeding at the point of consultant review or if their clinical condition changes.

8.2.1 All VTE risk assessments and prescriptions for thrombo-prophylaxis must be reviewed as part of the post-take ward round to ensure they are concordant with the patient’s diagnosis and on-going plan of care.

8.2.2 VTE risk assessments are not to be completed in a pre-operative setting.

8.2.3 Some Day case patients are exempt on the basis of an agreed “cohort” of low risk for thrombosis. Additional low risk cohort groups may be added following decision by the MEHT lead clinician for anticoagulation and agreement and authorisation by the medical director.
9.0 **General Principles and specific guidance on Thrombo-embolic Prophylaxis for all medical and surgical adult Patients when considering pharmacological VTE prophylaxis**

(Refer to the following guidance in relation to Maternity Services: 08014 Venous thromboembolism (VTE) risk assessment and thromboprophylaxis in maternity; 08033 Thromboprophylaxis and treatment during labour and delivery including Caesarean Section).

- All hospitalised patients, medical and surgical, should be kept well hydrated and mobile when appropriate.

- In order to reduce risk of “failing to administer”, clinicians should consider a routine prescribing time for enoxaparin for their patients.

9.1 **All adult inpatient admissions: medical patients**

9.1.1 **Acutely-ill medical patient**: Offer pharmacological VTE prophylaxis for a minimum of 7 days to acutely ill medical patients whose risk of VTE outweighs their risk of bleeding.

9.1.2 **Patient in palliative care**: Consider pharmacological VTE prophylaxis for people who are having palliative care. Take into account temporary increases in thrombotic risk factors, risk of bleeding, likely life expectancy and the views of the person and their family members or carers (as appropriate):

- Use LWMH as first line treatment;
- If LWMH is contraindicated, use fondaparinux sodium;
- Do not offer VTE prophylaxis to people in the last days of life.

9.1.3 **Patient with cancer**: Do not offer VTE prophylaxis to people with cancer who are receiving cancer-modifying treatments such as radiotherapy, chemotherapy or immunotherapy and who are mobile, except as outlined below, unless they are also at increased risk of VTE because of something other than the cancer.

Consider pharmacological VTE prophylaxis for people with myeloma who are receiving chemotherapy with thalidomide, pomalidomide or lenalidomide with steroids. Choose either:

- Aspirin (75 or 150mg) or
- LWMH.

Consider pharmacological VTE prophylaxis with LMWH for people with pancreatic cancer who are receiving chemotherapy.

If giving VTE prophylaxis to people with cancer, continue for as long as they are receiving chemotherapy.
9.1.4 **Patient admitted for Stroke:**
- Do not offer anti-embolism stockings for VTE prophylaxis to people who are admitted for acute stroke;
- Consider intermittent pneumatic compression for VTE prophylaxis for people who are immobile and admitted with acute stroke. If using, start it within 3 days of acute stroke.

Explain to the person admitted with acute stroke and their family members or carers (as appropriate) that intermittent pneumatic compression:
- Reduces the risk of deep vein thrombosis and may increase their chances of survival;
- Will not help them recover from stroke, and there may be an associated increased risk of surviving with severe disability.
- When using intermittent pneumatic compression for people who are admitted with acute stroke, provide it for 30 days or until the person is mobile or discharged, whichever is sooner.
- Do not offer LMWH for VTE prophylaxis to people who are admitted for acute stroke.

9.1.5 **Patient with acute coronary syndrome:** Consider VTE prophylaxis for people at increased risk of VTE who are interrupting anticoagulant therapy.

Be aware that people receiving anticoagulant drugs as part of their treatment for an acute coronary syndrome do not usually need VTE prophylaxis.

9.1.6 **Patient with renal impairment:** If using pharmacological VTE prophylaxis for people with renal impairment, choose either LMWH or UFH.

If needed, reduce the dose of LMWH and UFH for people with renal impairment. Base the decision on multidisciplinary or senior opinion, or locally agreed protocols.

9.2 **All surgical patients**

9.2.1 **Abdominal and bariatric surgery:** Offer VTE prophylaxis to people undergoing abdominal (gastrointestinal, gynaecological, urological) surgery who are at increased risk of VTE. For people undergoing bariatric surgery, follow the recommendations below.

Start mechanical VTE prophylaxis on admission for people undergoing abdominal surgery. Choose either:
- Anti-embolism stockings or
- Intermittent pneumatic compression.

Continue until the person no longer has significantly reduced mobility relative to their normal or anticipated mobility.

Add pharmacological VTE prophylaxis for a minimum of 7 days for people undergoing abdominal surgery whose risk of VTE outweighs their risk of bleeding, taking into account individual patient factors and according to clinical judgement. Choose either:
- LMWH or
- Fondaparinux sodium.
Consider extending pharmacological VTE prophylaxis to 28 days postoperatively for people who have had major cancer surgery in the abdomen.

9.2.2 **Head and neck surgery:** Consider pharmacological VTE prophylaxis with LMWH for a minimum of 7 days for people undergoing oral or maxillofacial surgery whose risk of VTE outweighs their risk of bleeding.

Consider mechanical VTE prophylaxis on admission for people undergoing oral or maxillofacial surgery who are at increased risk of VTE and high risk of bleeding. Choose either:
- Anti-embolism stockings or
- Intermittent pneumatic compression.

Continue until the person no longer has significantly reduced mobility relative to their normal or anticipated mobility.

9.3 **Ear, nose or throat surgery:** Consider pharmacological VTE prophylaxis with LMWH for a minimum of 7 days for people undergoing ear, nose or throat (ENT) surgery whose risk of VTE outweighs their risk of bleeding.

Consider mechanical VTE prophylaxis on admission for people undergoing ENT surgery who are at increased risk of VTE and high risk of bleeding. Choose either:
- Anti-embolism stockings or
- Intermittent pneumatic compression.

Continue until the person no longer has significantly reduced mobility relative to their normal or anticipated mobility.

9.4 **Neurological (cranial or spinal surgery):**

9.4.1 **Elective spinal surgery**

Offer mechanical VTE prophylaxis on admission to people undergoing elective spinal surgery. Choose either:
- Anti-embolism stockings or
- Intermittent pneumatic compression.

Continue for 30 days or until the person is mobile or discharged, whichever is sooner.

Consider adding pharmacological VTE prophylaxis with LMWH for people undergoing elective spinal surgery whose risk of VTE outweighs their risk of bleeding, taking into account individual patient and surgical factors (major or complex surgery) and according to clinical judgement.

If using LMWH for people undergoing elective spinal surgery, start giving it 24–48 hours postoperatively according to clinical judgement, taking into account patient characteristics and surgical procedure. Continue for 30 days or until the person is mobile or discharged, whichever is sooner.

If needed, start LMWH earlier than 24 hours after the operation for people undergoing
elective spinal surgery. Base the decision on multidisciplinary or senior opinion, or a locally agreed protocol.

9.5 **Vascular surgery:** Consider pharmacological VTE prophylaxis with LMWH for a minimum of 7 days for people who are undergoing open vascular surgery or major endovascular procedures, including endovascular aneurysm repair whose risk of VTE outweighs their risk of bleeding.

Consider mechanical VTE prophylaxis on admission for people who are undergoing open vascular surgery or major endovascular procedures, including endovascular aneurysm repair, if pharmacological prophylaxis is contraindicated. Choose either:

- Anti-embolism stockings or
- Intermittent pneumatic compression.

Continue until the person no longer has significantly reduced mobility relative to their normal or anticipated mobility.

9.6 **Lower limb amputation:**

Consider pharmacological VTE prophylaxis with LMWH for a minimum of 7 days for people who are undergoing lower limb amputation whose risk of VTE outweighs their risk of bleeding.

Consider mechanical VTE prophylaxis with intermittent pneumatic compression on the contralateral leg, on admission, for people who are undergoing lower limb amputation and if pharmacological prophylaxis is contraindicated.

For people undergoing lower limb amputation, continue mechanical VTE prophylaxis until the person no longer has significantly reduced mobility relative to their anticipated mobility.

9.7 **Varicose vein surgery:**

Be aware that VTE prophylaxis is generally not needed for people undergoing varicose vein surgery where:

- Total anaesthesia time is less than 90 minutes and
- The person is at low risk of VTE.

Consider pharmacological VTE prophylaxis with LMWH, starting 6–12 hours after surgery and continuing for 7 days for people undergoing varicose vein surgery if:

- Total anaesthesia time is more than 90 minutes or
- The person's risk of VTE outweighs their risk of bleeding.

Consider mechanical VTE prophylaxis with anti-embolism stockings, on admission, for people undergoing varicose vein surgery:

- Who are at increased risk of VTE and
- If pharmacological prophylaxis is contraindicated.

If using anti-embolism stockings for people undergoing varicose vein surgery, continue until the person no longer has significantly reduced mobility relative to their normal or anticipated mobility.
9.8 Patients having orthopaedic surgery

9.8.1 Elective hip replacement

Offer VTE prophylaxis to people undergoing elective hip replacement surgery whose risk of VTE outweighs their risk of bleeding. Choose any one of:

- LMWH (for 10 days) followed by aspirin (75 or 150 mg) for a further 28 days.
- LMWH (for 28 days) combined with anti-embolism stockings (until discharge).
- Rivaroxaban, or Apixaban

Consider anti-embolism stockings until discharge from hospital if pharmacological interventions are contraindicated in people undergoing elective hip replacement surgery.

9.8.2 Elective knee replacement

Offer VTE prophylaxis to people undergoing elective knee replacement surgery whose VTE risk outweighs their risk of bleeding. Choose any one of:

- Aspirin (75 or 150 mg) for 14 days.
- LMWH (for 14 days) combined with anti-embolism stockings (until discharge)
- Rivaroxaban, or Apixaban

Consider intermittent pneumatic compression if pharmacological prophylaxis is contraindicated in people undergoing elective knee replacement surgery. Continue until the person is mobile.

9.8.3 Foot and ankle surgery:

Consider pharmacological VTE prophylaxis for people undergoing foot or ankle surgery:

- that requires immobilisation (for example, arthrodesis or arthroplasty); consider stopping prophylaxis if immobilisation continues beyond 42 days (see lower limb immobilisation) or
- when total anaesthesia time is more than 90 minutes or
- The person's risk of VTE outweighs their risk of bleeding.

9.8.4 Upper limb surgery:

Be aware that VTE prophylaxis is generally not needed if giving local or regional anaesthetic for upper limb surgery.

Consider VTE prophylaxis for people undergoing upper limb surgery if the person's total time under general anaesthetic is over 90 minutes or where their operation is likely to make it difficult for them to mobilise.

9.8.5 Fragility fractures of the pelvis, hip and proximal femur:

Offer VTE prophylaxis for a month to people with fragility fractures of the pelvis, hip or proximal femur if the risk of VTE outweighs the risk of bleeding. Choose either:

- LMWH, starting 6–12 hours after surgery or
- Fondaparinux sodium, starting 6 hours after surgery, providing there is low risk of bleeding.
Consider pre-operative VTE prophylaxis for people with fragility fractures of the pelvis, hip or proximal femur if surgery is delayed beyond the day after admission. Operative VTE prophylaxis is required for people with fragility fractures of the pelvis, hip or proximal femur if surgery is delayed beyond the day after admission. Give the last dose no less than 12 hours before surgery for LMWH or 24 hours before surgery for fondaparinux sodium.

Consider intermittent pneumatic compression for people with fragility fractures of the pelvis, hip or proximal femur at the time of admission if pharmacological prophylaxis is contraindicated. Continue until the person no longer has significantly reduced mobility relative to their normal or anticipated mobility.

9.8.6 Non-arthroplasty knee surgery:

Be aware that VTE prophylaxis is generally not needed for people undergoing arthroscopic knee surgery where:
- total anaesthesia time is less than 90 minutes and
- The person is at low risk of VTE.

Consider LMWH 6–12 hours after surgery for 14 days for people undergoing arthroscopic knee surgery if:
- total anaesthesia time is more than 90 minutes or
- The person's risk of VTE outweighs their risk of bleeding.

Consider VTE prophylaxis for people undergoing other knee surgery (for example, osteotomy or fracture surgery) whose risk of VTE outweighs their risk of bleeding.

10.0 Prophylactic Treatment for High-risk Patients
(Refer to the following guidance in relation to Maternity Services: 08014 venous thromboembolism (VTE) risk assessment and thromboprophylaxis in maternity)

10.1 Monitoring patients remains the responsibility of the senior clinician. Generally, monitoring is by clinical assessment, without the need for plasma monitoring.

10.2 All staff should ensure that the patient and/or their families or carers are offered verbal and written information before starting VTE prophylaxis on:
- The risks and possible consequences of VTE
- The importance of VTE prophylaxis and its possible side effects
- The correct use of VTE prophylaxis including anti-embolism stockings, or intermittent pneumatic compression devices
- Reducing their risk of VTE

10.3 All staff should ensure that patients and/or their families or carers are offered verbal and written information on VTE prevention as part of the admission process.

10.4 Mechanical VTE prophylaxis as follows:
- Base the choice of mechanical VTE prophylaxis on individual patient factors including clinical condition, surgical procedure and patient preference. Choose any one of:
  - Anti-embolism stockings (thigh or knee length)
  - Foot impulse devices
o Intermittent pneumatic compression devices (thigh or knee length)
o Anti-embolism stockings

- Do not offer anti-embolism stockings to patients who have:
  o Suspected or proven peripheral arterial disease
  o Peripheral arterial bypass grafting
  o Peripheral neuropathy or other causes of sensory impairment
  o Any local conditions in which stockings may cause damage, for example fragile ‘tissue paper’ skin, dermatitis, gangrene or recent skin graft
  o Known allergy to material of manufacture
  o Cardiac failure
  o Severe leg oedema or pulmonary oedema from congestive heart failure
  o Unusual leg size or shape
  o Major limb deformity preventing correct fit

- Ensure that patients who need anti-embolism stockings have their legs measured and that the correct size of stocking is provided. Anti-embolism stockings 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 anti-embolism stockings refitted
- If arterial disease is suspected, seek expert opinion before fitting anti-embolism stockings
- Use anti-embolism stockings that provide graduated compression and produce a calf pressure of 14–15 mmHg. (This relates to a pressure of 14–18 mmHg at the ankle and is in line with British Standards for application of compression hosiery
- Encourage patients to wear their anti-embolism stockings day and night until they no longer have significantly reduced mobility
- Remove anti-embolism stockings 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 anti-embolism stockings if there is marking, blistering or discoloration of the skin, particularly over the heels and bony prominences, or if the patient experiences pain or discomfort. If suitable, offer a foot impulse or intermittent pneumatic compression device as an alternative
- Show patients how to use anti-embolism stockings correctly and ensure they understand that this will reduce their risk of developing VTE
- Monitor the use of anti-embolism stockings and help if they are not being worn correctly

10.5 Prophylactic treatment in the majority of medical and surgical patients will be Enoxaparin 40mg subcutaneously every 24 hours. If eGFR <30 mL/minute/1.73 m² reduce dose to 20mg subcutaneously every 24 hours. Dose adjustments may be required in some patients for example morbid obesity.

10.6 If knee or hip replacement surgery is planned oral Rivaroxaban 10mg once a day is given 6-10 hours post-surgery for 2 weeks for the knee and 5 weeks for the hip. For patients already on Anticoagulation, assessment should include indications of anti-coagulations and planned procedures.
(Refer to Trust guidelines entitled ‘Peri-procedural anticoagulation in Adult patients taking Warfarin and novel oral anti-coagulants (NOACS); register number 16005)
10.7 Extended post Discharge prophylaxis: NICE currently recommends extended post discharge VTE prophylaxis with LMWH in certain patients’ group as below:

- Any bowel resection to remove a malignancy, 28 days post-surgery
- Surgery for obesity (bypass and gastric banding), 7 days post-surgery
- Gynaecological surgery for malignant condition, 28 days post-surgery
- Nephrectomy for the removal of malignancy, 28 days post-surgery
- Hip fracture, 35 days.
- Patients in lower limb plaster casts, until cast removal.

11.0 **Procedure for the Investigation and Management of Deep Vein Thrombosis**

(Refer to the following guidance in relation to Maternity Services: 12007 Management of Women with VTE, DVT or PE during Antenatal and Postnatal Period)

11.1 This procedure outlines the approach to be taken to investigate and treat deep vein thrombosis (DVT). However, each case will need to be assessed on its own merits and for a variety of reasons may not follow the approach outlined here. This policy is based on BCSH guidelines.

11.2 Lower limb DVT is suspected in patients with leg pain, swelling, heat or tenderness individually or in any combination as follows:

- In the outpatient department, acute medical and ambulatory care unit initial investigations could include DVT screening using the pre-test probability (PTP) and / or D- dimer blood tests. D-dimer should not be used to exclude VTE in inpatients with stay >24 hours
- Objective diagnosis is mandatory. In cases where VTE is suspected, clinical evaluation must be supported by confirmatory imaging. This may include Doppler ultrasound, venography, and CT pulmonary angiography (CTPA)
- Baseline blood test should include full blood count (FBC), coagulation screen (aPTT, INR), renal and liver function tests

11.3 Wells et al developed a clinical scoring system, based on the criterion shown in table 1, and this is probably the most widely used internationally for lower limb DVT. Patients suspected of DVT should be examined and a Wells score determined. Those with a low score, zero or less, (information on the form) should then have a d-dimer test. Those with a negative d-dimer result (currently less than 250 ng/ml) may be considered as not having a DVT and do not require a Doppler ultrasound scan.

(Refer to Appendix 4)

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<td>Active cancer</td>
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<tr>
<td>Bedridden recently &gt;3 days or major surgery within 4 weeks</td>
<td>1</td>
</tr>
<tr>
<td>Calf swelling &gt;3 cm compared to the other leg (measured 10 cm below tibial tuberosity)</td>
<td>1</td>
</tr>
<tr>
<td>Collateral (non-varicose) superficial veins present</td>
<td>1</td>
</tr>
<tr>
<td>Entire leg swollen</td>
<td>1</td>
</tr>
<tr>
<td>Localized tenderness along deep venous system</td>
<td>1</td>
</tr>
<tr>
<td>Pitting oedema, greater in symptomatic leg</td>
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11.4 Those with a low Wells score and a positive d-dimer result (currently 250 ng/ml or higher) should have a Doppler ultrasound scan arranged the same day. If a same day scan is not available, then a therapeutic dose of LMWH should be given daily until a reported scan is available.

11.5 Those with a Wells score of 1 or more are considered at higher risk of DVT and a same day Doppler ultrasound scan should be arranged. If a same day scan is not available, then a therapeutic dose of LMWH should be given daily until a reported scan is available.

11.6 If a high index of suspicion for DVT remains after a negative scan then consider repeat scanning at an interval of 1 week.

11.7 In pregnant women and patients already on anticoagulant treatment, proceed directly to a Doppler ultrasound scan when DVT is suspected. This is also a reasonable approach for those with a previous history of venous thromboembolism (VTE). If the Doppler ultrasound scan in pregnancy is negative and pelvic vein thrombosis is suspected discuss further radiological investigation with consultant radiologist.

11.8 If DVT is suspected in areas other than the lower limbs, each case needs to be considered individually and should be discussed with a radiologist to arrange for the most appropriate radiological investigation. Currently, there is no role for d-dimer testing in these settings. Where the appropriate radiology cannot be undertaken on the same day, therapeutic doses of daily LMWH should be started and continued until at least the report is available.

11.9 Whenever a negative scan is reported, but a high index of suspicion remains for a diagnosis of DVT, a repeat scan should be undertaken at an interval of 1 week.

11.10 It is important when requesting d-dimer testing that the Wells score is stated on the request, or it may not be accepted. Similarly, when requesting a Doppler ultrasound, the Wells score must be stated, and also the d-dimer where the Wells score is low, on the request. In addition, clinical details should be given on the Doppler ultrasound request, in particular the location of the suspected DVT.

11.11 Following a diagnosis of DVT, treatment with anticoagulation at therapeutic doses as per formulary should be started immediately, unless there is a contraindication to this. Consider DOAC’s in suitable patients, or therapeutic LMWH, then bridging with Warfarin to start on the same day, unless contraindicated.

11.12 It is preferable, safe and effective to treat pregnant women with LMWH rather than warfarin. Warfarin crosses the placenta. The early risk of warfarin embryopathy is greatest from 6 to 12 weeks gestation and there is the late risk of fetal intracranial haemorrhage. All pregnant women should be treated with LMWH, unless contraindicated, and referred to the hospital anticoagulant clinic for monitoring of (Refer to the following guidance in relation to Maternity Services: 08014 Venous thromboembolism (VTE) risk assessment and thromboprophylaxis in maternity; 08033 Thromboprophylaxis and treatment during labour and delivery including Caesarean Section; 12007 Management of
Women with VTE, DVT or PE during Antenatal and Postnatal Period anticoagulant treatment)

11.13 A well-established, nurse-led, outpatient DVT service is in operation at Broomfield Hospital. GPs directly refer cases to this service, which is now based on the Ambulatory Care Unit (ACU) in the Emergency Village (refer to appendix 5). Selected outpatients from within the hospital may also be accepted; please contact the staff on ACU to discuss individual cases.

11.14 An outpatient nurse-led anticoagulation clinic is in operation at Broomfield hospital, as well as select GP practices. Please ensure patients are referred appropriately for further anticoagulation monitoring after discharge.

11.15 Not all patients will be suitable for outpatient treatment of DVT. Table 2 offers some guidance on unsuitable or high-risk patients, whose care may be more appropriate as an in-patient, but is not exhaustive.

**Table 2 - Patients that may be unsuitable for outpatient treatment**

- Patients with co-existent serious medical pathology
- Severe acute venous obstruction
- Patients in severe pain
- Significant renal impairment (eGFR <30)
- Patients haemodynamically unstable
- Known heparin allergy or heparin-associated thrombocytopenia
- Suspected treatment compliance problems
- Communication problems (deafness, language difficulties)
- Patients currently taking warfarin
- Patients with active bleeding
- Patients at significant risk of bleeding:
  - Active peptic ulceration
  - Liver disease
  - Uncontrolled hypertension (systolic > 180 mm Hg, diastolic > 110 mm Hg
  - Angiodysplasia
  - Recent haemorrhagic stroke (within 1 month)
  - Thrombocytopenia (platelets <80)

11.16 In patients with severe acute venous obstruction e.g. critical limb ischaemia, thrombolytic therapy (catheter-directed or systemic) or thrombectomy should be considered. Discuss such cases urgently with consultant interventional radiologist and consultant vascular surgeon. Thrombolysis is not an indication for vena cava (VC) filter insertion (BCSH guidelines 2006). If a VC filter is used, a retrievable one should be considered.

11.17 Vena cava filters are indicated to prevent pulmonary embolism (PE) in patients with VTE who have a contraindication to anticoagulation. Please refer to BCSH ‘Guidelines on the use of vena cava filters’ (2006) for further information. [https://b-s-h.org.uk/guidelines/guidelines/use-of-vena-cava-filters/](https://b-s-h.org.uk/guidelines/guidelines/use-of-vena-cava-filters/)

11.18 The British Committee for Standards in Haematology published ‘Guidelines on oral
anticoagulation with warfarin - 4th editions in 2011 and these should be read in conjunction with this policy. It gives recommendations for the intensity and duration of anticoagulant treatment, as well as recommendations for the reversal of warfarin and management of bleeding complications. It recommends that DVT in patients with cancer be treated with low molecular weight heparin, rather than warfarin. Therefore, these cases should be treated with LMWH at therapeutic doses as per formulary. The guidelines are readily available at www.bcshguidelines.com. Please also refer to the Trust Policy on reversal of warfarin anticoagulation. Advice is also available from the consultant haematologists and the Haemostasis and Thrombosis Nurse Practitioner.

11.19 Always consider the possibility of drug interactions with warfarin treatment; refer to the British National Formulary. Advice may also be sought from the hospital pharmacy.

11.20 Grade II graduated compression stockings (GCS) should be worn for two years following lower limb DVT. Stockings should be checked daily to ensure correct and comfortable fitting. It may be more comfortable for the patient to start wearing these a few days after initiation of anticoagulant treatment, once there has been reduction in swelling. After reduction in leg swelling, a smaller size may be more appropriate. (Refer to updated NICE guidance NG89, https://www.nice.org.uk/guidance/ng89)

12.0 Investigation of Suspected PE and Management of Patient on Confirmation of a Positive Diagnosis
(Refer to the following guidance in relation to Maternity Services: 12007 Management of Women with VTE, DVT or PE during Antenatal and Postnatal Period)

12.1 The diagnosis of pulmonary embolism (PE) may be suspected if patients have symptoms of pleuritic chest pain, haemoptysis or dyspnoea, and severe cases may present with collapse. If a diagnosis is suspected, then an urgent CTPA or V/Q scan should be performed the same day.

12.2 The diagnosis of PE may be difficult, and the Wells PE score may aid the diagnostic process (refer to Appendix 4 - Wells Score). Those with a low score and low d-dimer result may be considered, as not having a PE and no further radiological assessment is required.

12.3 Massive Pulmonary Embolism: Massive pulmonary embolus (PE) with hemodynamic instability is likely in the presence of:

- Collapse/hypotension
- Unexplained hypoxia, and Engorged neck veins, and right ventricular gallop (often)
- Emergency echocardiography may support the diagnosis by the demonstration of right ventricular strain
- Thrombolysis is the first line of treatment for massive PE and may be instituted on clinical grounds alone
- A total dose of 100 mg of Alteplase should be administered in 2 hours as per the following dose regimen:
<table>
<thead>
<tr>
<th>Treatment for Pulmonary Embolism</th>
<th>Concentration of alteplase</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 mg as an intravenous bolus over 1 - 2 minutes</td>
<td>10ml 5ml</td>
</tr>
<tr>
<td>followed by an intravenous infusion of 90 mg over 2 hours</td>
<td>90ml 45ml</td>
</tr>
</tbody>
</table>

- The total dose should not exceed 1.5 mg/kg in patients with a body weight below 65 kg.
- Streptokinase may be administered as 250,000 units by IV infusion, over 20-30 minutes, followed by an infusion at a rate of 100,000 per hour for 24-72 hours, without laboratory monitoring. It is then followed by anticoagulation with heparin/warfarin **NB Streptokinase should never be used again beyond 4 days from the initial use**.
- LMWH and Anti-Xa inhibitors have short half-lives; therefore, patients on prophylactic anticoagulant therapy should receive a full dose of therapeutic Low Molecular Weight Heparin.

12.4 The anticoagulant treatment of VTE (PE/DVT) follows the same principles. If a scan is not undertaken on the day of suspected diagnosis, then therapeutic doses of LMWH should be given until a reported scan is available.

12.5 Adult patients with confirmed VTE (DVT/PE) should be offered the choice of anticoagulation with a Vitamin K antagonist i.e. Warfarin or, where appropriate, treatment with a Direct Oral Anticoagulant (DOAC, formerly NOAC).

12.6 Adult patients with confirmed VTE (DVT/PE) who choose anticoagulation with Warfarin should receive therapeutic doses of LWMH as indicated in the table below until Warfarin has reached therapeutic levels. This can be confirmed when INR is greater than or equal to 2.0 for at least 24 hours, whichever is longer.

12.7 Adult patients with confirmed VTE (DVT/PE) who choose anticoagulation with a DOAC should receive treatment with one of the medications outlined below. Preference should be given to either Rivaroxaban or Apixaban for first line treatment of VTE. **Note:** there is no requirement for concurrent use of LMWH when patients with confirmed VTE are treated with a either Rivaroxaban or Apixaban.

12.8 Critically ill medical inpatients in which a DOAC’s would be a clinically acceptable option, Edoxaban with parenteral anticoagulation with LMWH cover for at least 5 days. (Refer to Appendix 3)

12.9 DOAC’s are not suitable for pregnant or paediatric patients.

12.10 In severe cases, thrombolytic therapy may be considered, and this decision should be made at consultant level and in discussion with the interventional radiologists.
13.0 Information for Patients

13.1 All patients must be given verbal and written information on admission about the risks of VTE and the effectiveness of prophylaxis ‘Reducing your risk of developing a blood clot’.

13.2 All surgical patients to be advised to consider stopping taking oestrogen based oral contraception or hormone replacing therapy, 4 weeks before elective surgery. If stopped, provide advice on alternative contraceptive methods.

13.3 Surgical Patients must be informed that immobility associated with continuous travel of more than 3 hours in the 4 weeks before surgery or after surgery may increase the risk of VTE.

13.4 On discharge, patients should be given verbal information and the appropriate patient information leaflet.

14.0 Ensuring Hospital Doctors are Informed if their Patients Suffer VTE after Discharge

14.1 It is part of the remit of the Thrombosis Group to ensure there is feedback of information to consultants if a patient suffers VTE after discharge. This can be achieved by:

- Ensuring that patients recently discharged from hospital who now attend the anticoagulation clinic for DVT/PE, written information is sent to the consultant by the Chair of the Thrombosis Group;
- The Chair of the Thrombosis Group will send copies of discharge letters for patients re-admitted with DVT/PE to previous consultant;
- For patients found to have DVT/PE at post mortem, copies of the report should be sent to the patient’s Consultant;
- The Trust will consider what process should be used for discharged out of area patients developing a DVT.

15.0 Infection Prevention

15.1 Staff should follow universal precautions and use aseptic non-touch technique (ANTT) at all times.

16.0 Education and Training

16.1 Staff must refer to the Mandatory Training Policy and the Training Needs Analysis (TNA) regarding training relevant to their role in relation to thromboembolism. The Mandatory Training policy identifies how training is monitored and how non-attendance will be followed up and managed.

16.2 All Directorate Managers / Clinical Directors / Directorate Nurse Managers and Ward / Departmental Managers are responsible for ensuring that relevant staff are familiar with the content of this document, the Mandatory Training Policy and Training Needs Analysis.
16.3 Staff must be competent in the measurement, fitting and monitoring of GES stockings. They must also be competent in educating patients in the use of GES stockings post discharge.

17.0 Monitoring for Compliance

17.1 Regular audit of VTE prophylaxis is undertaken and reported to the Thrombosis Group.

17.2 Data on completion of risk assessment on all patients admitted to hospital is collected and reported to the Department of Health on a monthly basis. The results of the monthly data collection will be reviewed by the Medical Director. The Hospital Thrombosis Group will identify any trends across the organisation and instigate any necessary actions to reduce identified risks.

17.3 Monthly compliance figures are reported to the Clinical Quality Review Group (CQRG)

18.0 Audit

18.1 A rolling programme of audit has been developed by the Thrombosis Group and lead by the Chair of the Thrombosis Group in accordance with the Clinical Audit Strategy and Policy to assess:

- Appropriate risk assessment to identify patients at risk of VTE on admission, with reassessment at 24 hours;
- The administration of appropriate prophylaxis including treatment of high-risk patients where VTE suspected;
- The management of patients where a positive diagnosis has been made;
- Information given to the patient during admission and at discharge.

18.2 The findings of the audit will be reported to the Thrombosis Group, relevant Directorate Governance Meetings and the Patient Safety Group. Where deficiencies are identified an organisational action plan will be developed and progress monitored at subsequent Thrombosis Group meetings.

18.3 Where indicated, Clinical Directors should develop local actions with named leads and timescales to address areas of non-compliance. Progress with these actions will be monitored at Directorate Governance Meetings.

18.4 Any identified learning will be disseminated to relevant staff.

19.0 Communication and implementation of Guideline

19.1 This guideline will be available on MEHT intranet, under Documents; Clinical Guidelines; Trust wide clinical guidelines.

19.2 This Guideline will be published on the Trust website under Policies and Guidelines and notified in Focus.
19.3 The appropriate risk assessment tool and prophylaxis guide should be visibly displayed as a laminated guide in wards, pre-assessment clinics and theatres.

20.0 References

National Institute for Health and care Excellence (2018) Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism. NICE Guidance (NG 89). London: NICE Available at: https://www.nice.org.uk/guidance/ng89


Appendix 1
Risk assessment for Venous Thromboembolism (VTE) to be used in conjunction with full current NICE guidelines

<table>
<thead>
<tr>
<th>Step 1: Classification of patient</th>
<th>tick</th>
<th>Medical patient NOT expected to have reduced mobility relative to normal state</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Patient expected to have ongoing reduced mobility relative to normal state</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgical Patient</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assess for thrombosis and bleeding risk below**

**Thromboprophylaxis not indicated. Risk assessment complete (Now sign Step 6)**

<table>
<thead>
<tr>
<th>Step 2: Thrombosis risk - tick all boxes that apply or tick here if no thrombosis risk factors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient related</strong></td>
<td><strong>Admission related</strong></td>
</tr>
<tr>
<td>☐ Active cancer or cancer treatment</td>
<td>☐ Significantly reduced mobility for 3 days or more</td>
</tr>
<tr>
<td>☐ Age &gt; 60</td>
<td>☐ Hip or knee replacement</td>
</tr>
<tr>
<td>☐ Dehydration</td>
<td>☐ Hip fracture</td>
</tr>
<tr>
<td>☐ Obesity (BMI &gt;30 kg/m2)</td>
<td>☐ Total anaesthetic + surgical time &gt; 90 minutes</td>
</tr>
<tr>
<td>☐ One or more significant medical comorbidities (e.g. heart disease; metabolic, endocrine or respiratory pathologies; acute infectious diseases; inflammatory conditions)</td>
<td>☐ Surgery involving pelvis or lower limb with a total anaesthetic + surgical time &gt; 60 minutes</td>
</tr>
<tr>
<td>☐ Personal history or first-degree relative with a history of VTE</td>
<td>☐ Acute surgical admission with inflammatory or intra-abdominal condition</td>
</tr>
<tr>
<td>☐ Use of hormone replacement therapy</td>
<td>☐ Critical care admission</td>
</tr>
<tr>
<td>☐ Use of oestrogen-containing contraceptive therapy</td>
<td>☐ Surgery with significant reduction in mobility</td>
</tr>
<tr>
<td>☐ Varicose veins with phlebitis</td>
<td>☐ Major trauma, spinal injury, lower limb plaster</td>
</tr>
<tr>
<td>☐ Pregnancy or ≤ 6 weeks post-partum (see NICE guidance for specific risk factors)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3: Bleeding risk – tick all boxes that apply or tick here if no bleeding risk factors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient related</strong></td>
<td><strong>Admission related</strong></td>
</tr>
<tr>
<td>☐ Active bleeding</td>
<td>☐ Neurosurgery, spinal surgery or eye surgery</td>
</tr>
<tr>
<td>☐ Acquired bleeding disorders (such as acute liver failure)</td>
<td>☐ Other procedure with high bleeding risk</td>
</tr>
<tr>
<td>☐ Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with INR &gt;2)</td>
<td>☐ Lumbar puncture/epidural/spinal anaesthesia expected within the next 12 hours</td>
</tr>
<tr>
<td>☐ Acute stroke (See NICE guidance)</td>
<td>☐ Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours</td>
</tr>
<tr>
<td>☐ Thrombocytopenia (platelets&lt; 75x10^9/l)</td>
<td></td>
</tr>
<tr>
<td>☐ Uncontrolled systolic hypertension (230/120 mmHg or higher)</td>
<td></td>
</tr>
<tr>
<td>☐ Untreated inherited bleeding disorders (such as haemophilia and von Willebrand’s disease)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 4: If any box ticked in STEP 2 consider prescribing pharmacological thromboprophylaxis</th>
<th>If any box ticked in STEP 3 consider whether bleeding risk sufficient to preclude pharmacological thromboprophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacological prophylaxis indicated ☐</td>
<td>Pharmacological prophylaxis not indicated ☐</td>
</tr>
<tr>
<td>If eGFR &lt;30mls/min reduce dose if using enoxaparin</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 5: Graduated compression stockings are indicated in all surgical patients with any box ticked in Step 2 or in medical patients where LMWH is contraindicated, unless any of the following apply:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Suspected or proven peripheral arterial disease</td>
<td>☐ Known allergy to material or manufacture</td>
</tr>
<tr>
<td>☐ Peripheral arterial bypass grafting</td>
<td>☐ Cardiac failure</td>
</tr>
<tr>
<td>☐ Peripheral neuropathy of other cause of sensory impairment e.g. fragile ‘tissue paper’ skin, dermatitis, gangrene or recent skin graft</td>
<td>☐ Severe leg oedema or pulmonary oedema from congestive cardiac failure</td>
</tr>
<tr>
<td>☐ Any local conditions in which stockings may cause damage</td>
<td>☐ Unusual size or shape</td>
</tr>
<tr>
<td>☐ Stockings Recommended &amp; prescribed ☐</td>
<td>☐ Major limb deformity preventing correct fit</td>
</tr>
<tr>
<td>☐ Stockings not Recommended ☐</td>
<td>☐ Acute stroke</td>
</tr>
<tr>
<td>If pharmacological prophylaxis and / or stockings are contraindicated, other mechanical thromboprophylaxis such as foot impulse devices or intermittent pneumatic compression devices should be considered.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 6: Admission Assessment completed: Date Print Sign</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reassess whenever clinical condition changes</td>
<td><strong>Condition change</strong></td>
</tr>
<tr>
<td>Change in prophylaxis recommendation? Yes / No</td>
<td><strong>State change if applicable</strong></td>
</tr>
<tr>
<td>Date</td>
<td><strong>Print &amp; Sign</strong></td>
</tr>
</tbody>
</table>

Chair: Alan Tobias  CEO: Clare Panniker
Appendix 2

Patient with signs or symptoms of DVT

Other causes excluded by assessment of general medical history and physical examination

DVT suspected

Two-level DVT Weil’s score (see main text)

DVT likely (≥2 points)

Is a proximal leg vein ultrasound scan available within 4 hours of being requested?

Yes

No

D-dimer test

Proximal leg vein ultrasound scan

Was the proximal leg vein ultrasound scan positive?

Yes

D-dimer test

No

Interim 24-hour dose of percutaneous anticoagulant

Proximal leg vein ultrasound scan within 24 hours of being requested

Was the proximal leg vein ultrasound scan positive?

Yes

Diagnose DVT and treat

No

Was the D-dimer test positive?

Yes

Repeat proximal leg vein ultrasound scan 6-8 days later

No

Was the repeat proximal leg vein ultrasound scan positive?

Yes

Diagnose DVT and treat

No

DVT unlikely (≤1 points)

D-dimer test

Was the D-dimer test positive?

Yes

Interim 24-hour dose of percutaneous anticoagulant

No

Proximal leg vein ultrasound scan within 24 hours of being requested

Was the proximal leg vein ultrasound scan positive?

Yes

Offer proximal leg vein ultrasound scan

No

Was the repeat proximal leg vein ultrasound scan positive?

Yes

Diagnose DVT and treat

No

Advise the patient it is not likely they have DVT. Discuss with them the signs and symptoms of DVT, and when and where to seek further medical help. Take into consideration alternative diagnoses.
## Wells Pulmonary Embolus Clinical Probability

### Wells PE Clinical Probability Score

<table>
<thead>
<tr>
<th>Clinical Feature</th>
<th>Score</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical sign DVT</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Heart Rate &gt;100/min</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Immobilisation ≥ 3 days Or surgery previous 4 weeks</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Previous DVT or PE</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Haemoptysis</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Malignancy unless in remission &gt;6 months</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PE as likely or more likely than alternative diagnosis</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Score of 4 or less = PE unlikely; Score greater than &gt;4 = PE likely</td>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

### Wells DVT Clinical Probability Score

<table>
<thead>
<tr>
<th>Clinical Feature</th>
<th>Score</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active cancer (treatment on-going or within previous 6 months or palliative)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Paralysis, plaster</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Bed &gt;3 days or surgery within 4 weeks</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tenderness along veins</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Entire leg swollen</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Calf swelling &gt;3cm</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pitting Oedema</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Collateral veins</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Alternative diagnosis to DVT as likely or more likely?</td>
<td>-2</td>
<td></td>
</tr>
<tr>
<td>Low: 0 or Less; Moderate: 1 or 2; high: 3 or more.</td>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 5

Extract from Emergency Village Standard Operational Procedure (Sept 2016)

6.2 Acute Medical Unit.

The vision is to develop an Acute Medical Unit (AMU) with direct patient access for both walking and ambulance routes for medical assessment and treatment.

The nursing workforce is Triage competent in order to assess and prioritise care requirements within the unit.

Acute physicians and acute medical take team are present and based within AMU, and should only see medically referred resus patients within ED.

The clinical workforce will include Nurse practitioner roles to enable the introduction of ambulatory nurse led pathways, with plans to develop ANP roles

Unit environment includes the Ambulatory Care area is 2 waiting rooms, 12 bay couches and 2 trollies in side rooms.

Non ambulatory area to include 10x assessment trollies, 2 x triage rooms 20 x24hr assessment beds the unit is supported be 2 reception areas.

The flow modelling requires the 10 assessment trollies to be clear at 10:00hrs and 18:00hrs to accommodate predicted medical referral both from GPs and ED.

6.2.1 Ambulatory care

Ambulatory care is defined by the Royal College of Physicians as:

“Ambulatory (emergency) care is clinical care which includes diagnosis, observation, treatment and rehabilitation, not provided within the traditional hospital bed base or outpatient services and can be provided across the primary/secondary interface” Royal College of Physicians 2007

A significant proportion of emergency attendances can be managed safely and appropriately on the same day without admission to a hospital bed. All patients within AMU should be considered ambulatory until assessed otherwise. Therefore, the nurse triage role follows Manchester Triage guidance, agreed ACU exclusion criteria and Ambulatory pathways to support this principle.
6.2.2 The aim will be ACU will be open 7/7 between 08:00-22:00Hrs current hours due to staffing constraints M-F 08:00-20:00Hrs and S-S 10:00-18:00Hrs

6.3. Method of Transfer to the Ambulatory Care Unit

6.3.1 Streaming – part of the ED nurse streaming function is to identify suitable patients for Ambulatory Care this is further supported by a “push/pull” approach where the ambulatory care band 6 will review the ED electronic system to identify any suitable patient to pull through.

6.3.2 General practitioners will initiate referral via the GP referral line in ACU between the hours of 10:00-18:00 then via switch out of hours to Med Spr. If concerns exist regarding the most appropriate manner of assessment, then they are given the option of discussing the case with the Acute Physician when ACU band 6 answers the call.

6.3.3 Patients will then be sent along with details of the destination and contact number for the Unit. In view of the acute nature of the visit it is not essential that pre-existing notes are available but upon request every effort will be made to obtain them within the shortest time possible. On arrival all patients and carers will be informed that they have been referred for assessment.

An information leaflet will be provided.

6.3.4 ED referrals made by and ED clinical decision maker will be transfer to AMU, this transfer is managed by the ED and AMU NICs without bed management involvement.

6.4.1 ACU attendances are both new emergency as well as review appointments.

6.4.2 The review appointments are limited to 12 per day. They enable a “virtual ward” approach: allowing the patient to undergo clinical management and supervision but staying overnight within the usual place of residence, this not only improves the quality of patient care and experience but also reduces occupied bed days in hospitals.
6.4.3 **Review appointments** also promote early facilitated discharge from the emergency village and wider organisation to support patient treatment programmes where applicable.

6.4.4 **Attendance numbers**

The target new attendances are defined by Nation Ambulatory care Network and agreed across MSB as 30% of the acute medical take. The trust will provide daily compliance reports to the standard with review if compliance not achieve through the Trust Urgent care board.

Example report

<table>
<thead>
<tr>
<th>Measure</th>
<th>18/05/17</th>
<th>19/05/17</th>
<th>20/05/17</th>
<th>21/05/17</th>
<th>22/05/17</th>
<th>23/05/17</th>
<th>24/05/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target ACU attendances</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>30</td>
<td>37</td>
<td>34</td>
<td>29</td>
</tr>
<tr>
<td>Actual new ACU attendances</td>
<td>9</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>12</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Performance</td>
<td>32%</td>
<td>21%</td>
<td>3%</td>
<td>13%</td>
<td>32%</td>
<td>50%</td>
<td>34%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th>18/05/17</th>
<th>19/05/17</th>
<th>20/05/17</th>
<th>21/05/17</th>
<th>22/05/17</th>
<th>23/05/17</th>
<th>24/05/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ED adults</td>
<td>187</td>
<td>193</td>
<td>195</td>
<td>209</td>
<td>267</td>
<td>242</td>
<td>205</td>
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<tr>
<td>10% of adults</td>
<td>19</td>
<td>20</td>
<td>20</td>
<td>21</td>
<td>27</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>Total medical take (amu attendances)</td>
<td>30</td>
<td>28</td>
<td>31</td>
<td>28</td>
<td>32</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>30% of medical take</td>
<td>9</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Target ACU attendances</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>30</td>
<td>37</td>
<td>34</td>
<td>29</td>
</tr>
<tr>
<td>Actual new ACU attendances</td>
<td>9</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>12</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Performance</td>
<td>32%</td>
<td>21%</td>
<td>3%</td>
<td>13%</td>
<td>32%</td>
<td>50%</td>
<td>34%</td>
</tr>
</tbody>
</table>

6.5.1 **Standards of Practise (see appendix 1 AMU flow Diagram)**

Once a patient is AMU the following standards will be adhered to:

- 15 minutes initial nurse assessment
- Patient to be seen within 1 hour by a clinical decision maker
Clinical management plan must be made within 6 hours
If the nurse in charge of the unit experiences any difficulties, he/she are adhering to the Emergency Village Escalation Protocols
All admissions, transfers and discharges must be recorded electronically on Lorenzo

6.6.1 Discharge
On discharge patients will be provided with relevant information to manage their on-going care
A copy of the Discharge Summary will be communicated with the GP and a copy will be given to the patient by the Acute Physician. The completion of detail within a summary may be delegated; however, the Acute Physician will have responsibility to sign off of a completed summary.

6.6.2 Follow-up Appointments on ACU
If patients are to be reviewed in the unit as follow ups in order to review progress or results of investigations, then they are given a time and date prior to them leaving the unit.
All follow-up appointments will be booked, and activity captured on appropriate systems
When a patient attends for a follow-up appointment a clinic outcome form will be completed by the Acute Physician or ACU Nurse Coordinator as part of the Electronic Discharge Letter (EDL)

6.7.1 Criteria to Access ACU

Exclusion Criteria for Referral to the ACU
Any ‘physical trauma’ related problem
The patient is physiologically unstable or at high risk of deteriorating. NEWS 4 or above
If the patient’s clinical condition presents a cross-infection risk for the patient or others
Patients under the age of 16 years
Disruptive/disorientated patients
Patients who have deliberate self-harmed
Patients who will need supported discharge
Patients whose problem will need regular follow up
Patients whose problem will need regular ‘Therapist’ input

These exclusions are subject to change and will be reviewed and updated accordingly according to staff and service development.

In addition, there are exclusion criteria for each condition specific pathway (see table below)

Agreed pathways for ambulatory use for nurse practitioner use and junior doctor reference for best practice are:

<table>
<thead>
<tr>
<th>PE</th>
<th>AF</th>
<th>Cellulitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVT</td>
<td>First Seizure</td>
<td>Blocked PEG</td>
</tr>
<tr>
<td>Low Risk Chest Pain</td>
<td>Seizure known Epilepsy</td>
<td>UTI</td>
</tr>
<tr>
<td>Pleural Effusion</td>
<td>Headache non traumatic</td>
<td>Pyelonephritis</td>
</tr>
<tr>
<td>Asthma</td>
<td>Upper GI bleed</td>
<td>Diabetes hypo &amp; hyper</td>
</tr>
<tr>
<td>COPD</td>
<td>Abnormal LFTs</td>
<td>CCF</td>
</tr>
<tr>
<td>LRTI</td>
<td>Anaemia - New</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 6: Preliminary Equality Analysis

This assessment relates to: Prevention and Treatment of Venous Thrombo-Embolism (VTE): Risk Assessment and Prophylaxis (09051)

<table>
<thead>
<tr>
<th>A change in a service to patients</th>
<th>A change to an existing policy</th>
<th>A change to the way staff work</th>
</tr>
</thead>
<tbody>
<tr>
<td>A new policy</td>
<td>Something else (please give details)</td>
<td>X</td>
</tr>
</tbody>
</table>

Questions | Answers
--- | ---
1. What are you proposing to change? | Full Review
2. Why are you making this change? (What will the change achieve?) | 3-year review and to update the policy with new NICE guidance published March 2018
3. Who benefits from this change and how? | Patients and clinicians
4. Is anyone likely to suffer any negative impact as a result of this change? If no, please record reasons here and sign and date this assessment. If yes, please complete a full EIA. | No
5. a) Will you be undertaking any consultation as part of this change? b) If so, with whom? | Refer to pages 1 and 2

Preliminary analysis completed by:

<table>
<thead>
<tr>
<th>Name</th>
<th>Job Title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Su Ames</td>
<td>Patient Safety Manager</td>
<td>March 2019</td>
</tr>
</tbody>
</table>