Somerset Partnership NHS
NHS Foundation Trust

DEEP VEIN THROMBOSIS AND PULMONARY EMBOLISM: DIAGNOSIS AND MANAGEMENT POLICY

To be read in conjunction with the

VTE (Venous Thromboembolism) Policy and Rapid Tranquilisation Policy

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Relevant Staff Groups:	Clinical staff in inpatient mental health wards and community hospitals, district nursing teams, cardiac rehabilitation and stroke teams.

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DOCUMENT CONTROL

Reference Number	**Version**	**Status**	**Author**
NV/Apr13/DVT&PEP	4	FINAL	Senior Nurse for Clinical Practice
Amendments	New policy for DVT & PE following NICE guidance June 2012 and Rivaroxaban NICE technology appraisal. Amendments following review by Mental Health and Community Health staff. Amended April 2015 to include new medicinal guidance. November 2015 to future proof due to further treatments recommended by NICE		
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Intended recipients: Somerset Partnership NHS Foundation Trust Health Staff - Clinical staff in inpatient mental health wards and community hospitals, district nursing teams, cardiac rehabilitation and stroke teams.			
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Contact for review	Senior Nurse for Clinical Practice		
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1. INTRODUCTION

1.1 The purpose of this policy is to ensure that all patients admitted to Somerset Partnership NHS Foundation Trust Hospitals or treated at Minor Injury Units or Clinical Assessment and Treatment Unit are formally assessed and where appropriate treated correctly on suspicion and diagnosis of Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE).

1.2 This policy has been introduced following NICE guidance 144 and subsequent NICE Technology Appraisals.

1.3 Venous thromboembolism (VTE) is a condition in which a blood clot (thrombus) forms in a vein. It most commonly occurs in the deep veins of the legs; this is called deep vein thrombosis. The thrombus may dislodge from its site of origin to travel in the blood particularly to the pulmonary arteries – a phenomenon called pulmonary embolism (PE). VTE disease covers a spectrum ranging from asymptomatic calf vein thrombosis to symptomatic DVT. They can be fatal if they lead to PE, in which the blood supply to the lungs is badly blocked by the thrombus. Non-fatal VTE can cause serious long-term conditions such as post-thrombotic syndrome.

1.4 Thrombophilia is a major risk factor for VTE. It is an inherited or acquired prothrombotic state that predisposes to VTE. Other major risk factors for VTE include a history of DVT, age over 60 years, surgery, obesity, prolonged travel, acute medical illness, cancer, immobility and pregnancy.

1.5 Failure to diagnose and treat VTE correctly can result in fatal PE. However, diagnosis of VTE is not always straightforward. This policy includes advice on the Wells score, D-dimer measurement, ultrasound and radiological imaging. The policy covers adults with suspected or confirmed DVT and PE.

2. PURPOSE AND SCOPE

2.1 To ensure all patients treated by Somerset Partnership NHS Foundation Trust are formally assessed and measures are taken to diagnose and treat VTE in line with National Guidance.

3. DUTIES AND RESPONSIBILITIES

3.1 The **Trust Board** has a duty to care for patients receiving care and treatment from the Trust and has overall responsibility for procedural documents and delegates responsibility as appropriate.

3.2 The **Lead Director** is the **Director of Nursing and Patient Safety** with devolved responsibility for the implementation of this policy.

3.3 The **Senior Nurse for Clinical Practice** is responsible for monitoring the incidence of VTE, including monitoring and reporting on trends.

Responsibilities also include reporting quarterly to the Clinical Governance Group and managing the VTE Improvement Action Plan.

3.4 **Heads of Service/Senior Managers** have responsibility for implementing this policy and for ensuring high standards of clinical healthcare within the service for which they have overall responsibility and to ensure adherence to this policy.

3.5 **Line Managers** will ensure that staffs are adhering to this policy and are trained appropriately according to the Mandatory Staff Training Matrix and the VTE e-learning package available on the Training and Development intranet site.

3.6 **All staff including temporary staff** are individually responsible for their actions including complying with this policy and undertaking any training in line with the Mandatory Training matrix (see section 13).

4. EXPLANATIONS OF TERMS USED

4.1 **Venous Thromboembolism** - is a condition in which a blood clot (thrombus) forms in any vein. The term 'VTE' includes both DVT and PE.

4.2 **Pulmonary Embolism** – is a condition in which a blood clot(s) is lodged in the pulmonary veins (in the lung).

4.3 **Deep Vein Thrombosis** – is the formulation of a blood clot in the large vein, most commonly in the large vein of the leg.

4.4 **RiO** - Electronic Patient Record

5. ASESSMENT PROCESS

Patient Information and Consent

5.1 All patients receiving treatment for suspected or diagnosed VTE will be offered the appropriate leaflets for the treatment prescribed, 'Self administration of Enoxaparin' and 'Anti-embolic stockings' (Appendices A and B). This information will be used to obtain verbal consent from the patient allowing healthcare staff to assess and where necessary provide treatment to the patient with suspected or confirmed VTE.

5.2 Hospital medical and nursing staff must be completely familiar with the patient information provided allowing them to be able to answer general questions that may arise while obtaining verbal consent. In order to gain informed consent an interpreter may need to be considered. For patients who lack capacity to consent, please refer to the Consent and Capacity to Consent Policy for further information. Procedures and risks should be explained to patients at all times in a language and format they can easily understand.

6 ASSESSEMENT AND TREATMENT OF DVT

6.1 The patient may present with;

- a painful calf, knee or anywhere in the leg for a DVT
- there may be localised tenderness along the distribution of the deep venous system
- the entire leg may be swollen
- calf swelling at least 3cm larger than the asymptomatic side
- pitting oedema confined to the symptomatic side
- prominent superficial veins
- increased temperature

Diagnosis and investigations of DVT

6.2 If a DVT suspected , registered nurses in Community Health are to conduct a Wells Score for DVT (Appendix A), undertake all physiological observations (respiratory rate, temperature, pulse, blood pressure, respiratory rate and peripheral oxygen saturation) and then contact medical staff immediately. Mental Health staff are to undertake all physiological observations and contact the medical staff immediately.

6.3 Patients presenting to any of the Minor Injury Units with symptoms or problems related to anticoagulation treatment will be referred to the most appropriate acute service.

6.4 When a VTE is suspected or diagnosed, a DATIX report must be completed to identify the cause and promote learning.

6.5 Offer patients in whom DVT is suspected and with a **likely** two-level DVT Wells score **either**;

- a proximal leg vein ultrasound scan carried out within 4 hours of being requested and, if the result is negative, a D-dimer test (blood test).

  Or

- a D-dimer test and an interim 24 hour dose of parenteral anticoagulant (if a proximal leg vein ultrasound scan cannot be carried out within 4 hours) and a proximal leg vein ultrasound scan carried out within 24 hours of being requested.

6.6 The scan must be repeated 6-8 days later for all patients with a positive D-dimer test and negative proximal leg vein ultrasound scan.

6.7 Offer patients in whom DVT is suspected and with an **unlikely** two-level DVT Wells score a D-dimer test and if the result is positive offer **either**;

- a proximal leg vein ultrasound scan carried out within 4 hours of being requested

Or

- an interim 24 hour dose of a parenteral anticoagulant (if proximal leg vein ultrasound scan cannot be carried out within 4 hours) and a proximal leg vein ultrasound scan carried out within 24 hours of being requested.

6.8 Diagnose DVT and treat patients with a positive proximal leg vein ultrasound scan.

6.9 Take into consideration alternative diagnoses in patients with;

- an **unlikely** two-level DVT Wells score **and**
- a negative D-dimer test

or

- a positive D-dimer test and negative proximal leg vein ultrasound scan.

- a **likely** two-level DVT Wells score **and**
- a negative proximal leg vein ultrasound scan and negative D-dimer test

or

- a repeat negative proximal leg vein ultrasound scan.

Advise patients in these two groups that it is not likely they have a DVT, and discuss with them the signs and symptoms of DVT and where to seek further medical help if presenting at MIUs. Inpatients will need this discussion with the medical staff. Ensure all patients receive the 'Reducing the risk of blood clot' leaflet at Appendix A).

7 ASSESSMENT AND TREATMENT OF PE

7.1 The patient may present with;

- Chest pain
- Shortness of breath (tachypnoea)
- Haemoptysis and/or cyanosis
- Collapse
- Hypotension
- Raised jugular venous pressure
- Heart rate greater than 100 beats per minute
- Clinical signs and symptoms of DVT

Diagnosis and investigations of PE

7.2 If a PE is suspected, Registered Nurses in Community Health are to conduct a Wells Score for PE (refer to APPENDIX B), undertake all physiological observations (respiratory rate, temperature, pulse, blood pressure and peripheral oxygen saturation and then contact medical staff immediately. Mental Health staff are to undertake all physiological observations and contact the medical staff immediately.

7.3 Patients presenting to any of the Minor Injury Units with symptoms or problems related to anticoagulation treatment will be referred to the District General Hospital.

7.4 When a PE is suspected or diagnosed , a DATIX report must be completed to identify the cause and promote learning.

7.5 If PE is suspected, use the two-level PE Wells score to estimate the clinical probability of PE (see APPENDIX B).

7.6 Offer patients in whom PE is suspected and with a **likely** two-level PE Wells score **either**;

- an immediate computed tomography pulmonary angiogram (CTPA)

Or

- immediate interim parenteral anticoagulant therapy followed by a CTPA, if a CTPA cannot be undertaken immediately.

Consider a proximal leg vein ultrasound scan if the CTPA is negative and DVT is suspected.

7.7 Offer patients in whom PE is suspected and with an **unlikely** two-level PE Wells score a D-dimer test and if the result is positive offer **either**;

- an immediate CTPA

Or

- immediate interim parenteral anticoagulant therapy followed by a CTPA, if a CTPA cannot be undertaken immediately.

7.8 For patients with renal impairment a ventilation/perfusion single photon emission computed tomography (V/Q scan) is an alternative to CTPA.

7.9 Diagnose PE and treat patients with a positive CTPA or in whom PE is identified with a V/Q scan.

7.10 Take into consideration alternative diagnoses in the following two groups of patients;

- patients with an unlikely two-level PE Wells score and **either**;
- a negative D-dimer test

Or

- a positive D-dimer test and a negative CTPA.

- patients with a likely two-level PE Wells score and **both**:

- a negative CTPA **and**
- no suspected DVT.

Advise these patients that it is not likely they have PE and discuss with them the signs and symptoms of PE, and when and where to seek further medical help.

8 TREATMENT OF VTE (DVT/PE)

Pharmacological interventions

8.1 It is vital to assess the benefits and risks for each patient individually, each patient individually for anticoagulant therapy, including low molecular weight heparins. Please refer to the latest British National Formulary and summary of product characteristics for all treatment doses, cautions and contraindications of pharmacological agents

8.2 Following assessment of the risks and benefits of therapy, where treatment is indicated for deep vein thrombosis (DVT) and /or pulmonary embolism (PE) or the prophylaxis of secondary DVT and/or PE, follow the latest guidance contained in the NICE pathway for venous thromboembolism. **http://pathways.nice.org.uk/pathways/venous-thromboembolism**

8.3 Treatment should start as soon as possible. Length of treatment depends on individual clinical conditions and risk factors. Three months is recommended for patients with transient risk factors such as recent surgery or trauma, and longer treatment for permanent risk factors or idiopathic (unprovoked) deep vein thrombosis. At six months, assess the risks and benefits of continuing anticoagulation.

8.4 For patients with increased risk of bleeding and/or severe/established renal impairment and/or PE with haemodynamic instability consider unfractionated Heparin. Start treatment as soon as possible with Warfarin and continue for at least five days or until the international normalised ratio (INR) is 2 or above for at least 24 hours. Please refer to the instructions on the back of the Warfarin chart for any dosage changes Warfarin should continue for 3 months, then assessment of risks and benefits should be considered for continued use beyond 3 months for patient with an unprovoked DVT and PE.

8.5 For patients with recurrent VTE (DVT/PE) consider increasing the target INR to 3-4 for long-term high intensity oral anticoagulant therapy or switching to a low molecular weight heparin (Enoxaparin).

8.6 Always consider self administration for patients planned for discharge and offer practice before discharge (see Appendix A for advice for patients on self administration of Enoxaparin).

8.7 Some types of low molecular weight heparins do not have a UK marketing authorisation for 6 months treatment of DVT or PE in patients with cancer. Prescribers should consult the summary of product characteristics for the individual treatment and informed consent must be obtained for off-label use and clearly documented.

8.8 All patients receiving warfarin must have the 'yellow warfarin booklet' on discharge from care. Staff must ensure that patients on discharge have an appointment arranged with their GP for anticoagulation (see warfarin chart).

Mechanical intervention

8.9 After deep vein thrombosis affecting the lower limb has been diagnosed, the use of well fitted anti-embolic stockings should also be encouraged for two years (Please refer to the VTE Policy for further instructions on the use of anti-embolic stockings). Patients must be offered the leaflet regarding the use of stockings at this time (see Appendix B). Staff are to advise patients that the stockings are only to be worn on the affected leg or legs.

9 SELF MANAGEMENT AND SELF MONITORING FOR PATIENTS ON WARFARIN

9.1 Self-management or self-monitoring of INR by patients who have had a DVT or PE and are receiving warfarin, is not routinely offered for inpatients or patients in their homes.

10 FURTHER INVESTIGATIONS

10.1 Medical staff should offer the following investigations for cancer to all patients diagnosed with unprovoked DVT or PE who are not already known to have cancer.

- a physical examination (guided by the patient's full history) **and**
- a chest X-ray **and**
- blood tests (full blood count, serum calcium and liver function tests) **and**
- urinalysis

10.2 In line with the NICE guidance 144 do not offer thrombophilia testing to patients who are continuing anticoagulation treatment.

10.3 These and any other investigations are to be requested by specialist consultants.

11 DOCUMENTATION

11.1 Patients on anticoagulants must be informed of the duration, possible side effects and what to do if these should occur, the effects of other medications, food and alcohol on anticoagulant therapy, monitoring arrangements, how medication can affect their dental treatment,

pregnancy, sports and travel. The warfarin chart (Appendix E) must be indicated as in use on the front of the MAR and initialled and must always be included on the handover sheet as a high risk medication in use.

11.2 All interventions or discussion must be documented either within the care plan or evaluation records of the patients. Ensure that all leaflets given to the patient are documented as given and discussed with the patient in the evaluation records. Ensure leaflets are still present on discharge from the service.

12 TRAINING AND COMPETENCY ASSESSMENT

12.1 Training is accessible via e-learning for VTE training and anti-embolic stocking training. All training documents referred to in this policy are accessible to staff within the Learning and Development Section of the Trust Intranet.

12.2 On-line VTE education and training is available to all registered staff throughout Somerset Partnership NHS Foundation Trust.

12.3 There is a framework for the different levels of competence required for the prescription, measurement; application and reapplication of anti-embolic stockings (Please refer to the Trust VTE Policy).

13 EQUALITY IMPACT ASSESSMENT

13.1 All relevant persons are required to comply with this document and must demonstrate sensitivity and competence in relation to the nine protected characteristics as defined by the Equality Act 2010. In addition, the Trust has identified Learning Disabilities as an additional tenth protected characteristic. If you, or any other groups, believe you are disadvantaged by anything contained in this document please contact the Equality and Diversity Lead who will then actively respond to the enquiry.

14 MONITORING COMPLIANCE AND EFFECTIVENESS

14.1 Process for Monitoring Compliance

The appropriate Best Practice Groups are responsible for overall monitoring of compliance with this policy, and progress relating to any VTE incidents and trends will be reported within the 6 monthly reports to the Clinical Governance Group.

Hospital Matrons, Team Leaders and Ward Managers are to monitor compliance with this policy. Monitoring will take place through incident reporting on DATIX. Any actions and learning identified will be discussed locally as part of the incident action plan.

The Clinical Practice Team will monitor all incidents of suspected and diagnosed VTEs. This includes assisting local areas in completing root cause analysis, as well as monitoring and reporting on trends. The team

reports on VTE incidents quarterly to the Clinical Governance Group and manages the VTE Improvement Action Plan.

15 COUNTER FRAUD

15.1 The Trust is committed to the NHS Protect Counter Fraud Policy – to reduce fraud in the NHS to a minimum, keep it at that level and put funds stolen by fraud back into patient care. Therefore, consideration has been given to the inclusion of guidance with regard to the potential for fraud and corruption to occur and what action should be taken in such circumstances during the development of this procedural document.

16 RELEVANT CARE QUALITY COMMISSION (CQC) REGISTRATION STANDARDS

16.1 Under the **Health and Social Care Act 2008 (Regulated Activities) Regulations 2014 (Part 3), the fundamental standards** which inform this procedural document, are set out in the following regulations:

Regulation 9:	Person-centred care
Regulation 10:	Dignity and respect
Regulation 11:	Need for consent
Regulation 12:	Safe care and treatment
Regulation 13:	Safeguarding service users from abuse and improper treatment
Regulation 14:	Meeting nutritional and hydration needs
Regulation 15:	Premises and equipment
Regulation 16:	Receiving and acting on complaints
Regulation 17:	Good governance
Regulation 18:	Staffing
Regulation 19:	Fit and proper persons employed
Regulation 20:	Duty of candour
Regulation 20A:	Requirement as to display of performance assessments.

16.2 Under the **CQC (Registration) Regulations 2009 (Part 4)** the requirements which inform this procedural document are set out in the following regulations:

Regulation 16:	Notification of death of service user
Regulation 17:	Notification of death or unauthorised absence of a service user who is detained or liable to be detained under the Mental Health Act 1983
Regulation 18:	Notification of other incidents

16.3 Detailed guidance on meeting the requirements can be found at http://www.cqc.org.uk/sites/default/files/20150311%20Guidance%20for%20providers%20on%20meeting%20the%20regulations%20FINAL%20FOR%20PUBLISHING.pdf

17. REFERENCES, ACKNOWLEDGEMENTS AND ASSOCIATED DOCUMENTS

17.1 References

British National Formulary (latest edition), London: British Medical Journal Publishing Group.

Horlocker TT et al. 2003. Regional Anaesthesia in the Anticoagulant Patient (The second ASRA consensus conference on neuraxial anaesthesia and anticoagulation). *Regional Anaesthesia and Pain Medicine,* 28 (3), 172 – 197.

National Institute for Health and Clinical Excellence. 2012. Venous thromboembolic diseases: the management of venous thromboembolic disease and the role of thrombophilia testing. NICE clinical guideling 144.

NICE technology appraisal guidance 261 – Rivaroxaban for the treatment of deep vein thrombosis and prevention of recurrent deep vein thrombosis and pulmonary embolism.

NICE technology appraisal guidance 341 - Apixaban for the treatment and secondary prevention of deep vein thrombosis and/or pulmonary embolism

Cross reference to other procedural documents

Venous Thromboembolism Policy

Admission, Transfer and Discharge Policy

Consent and Capacity to Consent to Examination and/or Treatment Policy

Record Keeping and Records Management Policy

Learning Development and Mandatory Training Policy

Mandatory Training Matrix

Medicines Policy

Physical Assessment and Examination of Service Users Guidelines

Physiological Observations of Adults Policy

Untoward Events Reporting Policy

Serious Incidents Requiring Investigation (SIRI) Policy

All current policies and procedures are accessible in the policy section of the public website (on the home page, click on 'Policies and Procedures'). Trust Guidance is accessible to staff on the Trust Intranet.

18. APPENDICES

Appendix A	Two-level DVT wells score
Appendix B	Two-level PE wells score
Appendix C	'Self Administration of Enoxaparin' patient information leaflet
Appendix D	Anti-embolic stockings' patient information leaflet
Appendix E	Warfarin chart

TWO-LEVEL DVT WELLS SCORE **APPENDIX A**

CLINICAL FEATURE	**Points**
Active cancer (treatment ongoing, within 6 months, or palliative	1
Paralysis, paresis or recent plaster immobilisation of the lower extremities	1
Recently bedridden for 3 days or more or major surgery within 12 weeks requiring general or regional anaesthesia	1
Localised tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
Calf swelling at last 3 cm larger than asymptomatic side	1
Pitting oedema confined to the symptomatic leg	1
Collateral superficial veins (non-varicose)	1
Previously documented DVT	1
An alternative diagnosis is at least as likely as DVT	-2
Clinical probability simplified score	
DVT **likely**	2 points or more
DVT **unlikely**	1 point or less
Adapted from Wells PS et al. (2000) for NICE June 2012	

TWO-LEVEL PE WELLS SCORE **APPENDIX B**

CLINICAL FEATURE	**Points**
Clinical signs and symptoms of DVT (minimum of leg swelling and pain with palpation of the deep veins)	3
An alternative diagnosis is less likely than PE	3
Heart rate greater than 100 beats per minute	1.5
Immobilisation for more than 3 days or surgery in the previous 4 weeks	1.5
Previous DVT/PE	1.5
Haemoptysis (coughing blood)	1
Malignancy (on treatment, treated in the last 6 months, or palliative)	1
Clinical probability simplified scores	
PE **likely**	More than 4 points
PE **unlikely**	4 points or less
Adapted from Wells PS et al. (2000) for NICE June 2012	

Self administration of Enoxaparin

Information for patients

What is Enoxaparin?

Enoxaparin is a type of medicine that helps to reduce the risk of your blood from clotting (an anticoagulant). It is given by a small injection under the skin. Enoxaparin is made from pork derived heparin sodium and if you have any concerns about this speak to your health professional.

Why do I need Enoxaparin?

You may have had an operation that can make you less active than usual or have reduced mobility. Your health professional may therefore feel it is beneficial for you to continue this medication when you go home. When you are inactive for a time blood can collect in the lower parts of your body, often in the lower leg. As a result a blood clot can develop in the large vein of the legs. This is called a Deep Vein Thrombosis (**DVT)** and can cause long term damage to your veins. Although this blood clot may not cause an immediate problem there is a risk that it can break loose and travel through the blood stream where it can cause problems. If the clot travels to the lungs it is called a Pulmonary Embolus (**PE)** which can be life threatening. If you are at risk of or have had a DVT or PE you may require this medicine as part of the treatment for your condition in hospital and sometimes after you go home.

Who is at risk of developing a blood clot?

You may be at a higher risk of blood clots if;

- You have had surgery such as knee replacement, hip replacement or abdominal surgery
- You have had surgery that may reduce your mobility
- You are over 60 years, the risk increases the older you are
- You are taking the contraceptive pill or hormone replacement therapy
- You have long standing heart or lung problems
- You are obese
- You or a family member has had a blood clot before
- You have cancer or are on cancer treatment
- You have had a stroke
- You have varicose veins
- You are unable to move around

How is it given?

Enoxaparin injections are in ready to use syringes. Enoxaparin is given as an injection just under the skin (subcutaneous) at approximately the same time each day. Your health professional will tell you how long you will need to continue with this treatment. You may be able to give your own injections. Your nurse will teach you how to do this.

Step by step instructions for self injecting Enoxaparin

- Wash your hands with soap and warm water and dry them thoroughly
- Choose an area on either left or right side of your stomach
- Keep away from scarred areas, bruises and where skin will be rubbed by clothes
- Carefully remove the protective cap from the end of the syringe
- Hold the syringe like a pencil in the hand you normally write with
- Pinch a fold of skin between the thumb and index finger of your other hand
- Insert the whole length of the needle into the fold of your skin
- Keep the needle straight and at a right angle to your body
- Press the plunger down gently but firmly until it stops and the syringe is empty
- Gently pull the needle out taking care to keep it straight
- Put the used syringe into the sharps bin

You should

- Alternate the side on which you inject
- Make sure you put your used syringes into the safety bin each time you inject
- Keep the sharps bin out of reach of children
- Take your Enoxaparin injection at approximately the same time each day
- Look out for unusual signs of bleeding
- Take care when shaving or using sharp objects as you may bleed more easily than usual
- Tell your nurse or doctor about other medicines you are taking as these can affect the way Enoxaparin works

You shouldn't

- Touch the needle before you inject, this will help keep it sterile and reduce the risk of infection
- Twist off the needle cap as this could bend the needle
- Put the cap back onto the needle after injecting
- Rub the skin after you have injected as this can cause bruising
- Let anyone else use your Enoxaparin injections

Storage

Keep in a safe place out of the reach of children. Keep at room temperature and away from light and moisture. Do not put in the fridge.

Side effects

The most common side effect is that you may be prone to bruising or bleeding. You may notice tests to monitor. If you have any of the following please contact your health professional at once:

- Bleeding from a surgical wound
- Any other bleeding - for example, from the skin where you have injected, nosebleeds, blood in your urine or if you cough up blood or vomit blood
- Unusual bruising not caused by a blow or other obvious reason

You must also tell your doctor if you

- Have a serious fall or head injury
- Become pregnant or are planning to become pregnant
- Notice any other unusual signs or symptoms
- Are allergic to Enoxaparin sodium, heparin or pork products if Enoxaparin is offered to you

What if I miss an injection?

Do not worry, just take your injection as soon as you remember then go on as before. Do not take double the dose on the same day.

Sharps bin disposal

You will be supplied with a sharps bin which, after the course of treatment or when the sharps bin is full, must be returned to the hospital at your next visit so that we can dispose of them for you. Don't forget to secure the lid.

Contact

If you have any questions or are unsure about anything to do with your treatment, ask your nurse, doctor, pharmacist or surgeon for more information. The following website can provide additional information http://www.nice.org.uk/CG046.

If you would like to contact our Patient Advice and Liaison Service (PALS) please telephone 01278 432022 or email pals@sompar.nhs.uk

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Somerset Partnership NHS
NHS Foundation Trust

Anti-embolic stockings

Information for patients

Introduction

We hope this fact sheet will help you to understand a little more about the use of anti-embolic stockings.

If you have any further questions, please don't hesitate to ask the nursing or medical staff. They will be happy to help you.

What are anti-embolic stockings?

Anti-embolic stockings are tight stockings. They can help to improve the flow of blood through veins in your legs by providing external support to your legs.

Why do I need anti-embolic stockings?

If you stay in bed for any length of time or are otherwise inactive, the blood in your veins slows down. This is because the leg muscles are not pumping the blood back to your heart. When the blood flow slows down there is an increased risk of a blood clot forming in the vein. This is called a deep vein thrombosis (DVT).

Anti-embolic stockings provide support that will help to prevent this.

Who should not wear anti-embolic stockings?

Anti-embolic stockings should not be worn if you suffer from any of the following conditions:

- Gangrene / dermatitis / recent skin graft
- Peripheral vascular disease / arteriosclerosis
- Pulmonary oedema (an excess of fluid in the lungs due to heart failure)
- Gross limb cellulitis
- Extreme leg oedema
- Extreme deformity of the leg
- Peripheral neuropathy

You should also not wear anti-embolic stockings if the circumference of your thigh is greater than those listed in the fitting instructions.

What will happen before my stocking is applied?

Somerset Partnership

The nursing staff will assess you to see if you are suitable for treatment using anti-embolic stockings.

They will then prescribe the correct stockings for you. The nurse will measure your legs and fit the correct size stocking for you.

How do I put on the anti-embolic stockings?

The nurse will show you how to put on the anti-embolic stockings as follows:

- Insert your hand into the foot of the stocking as far as the heel pocket
- Grasp the heel pocket and turn the stocking inside out
- Put the stocking over your foot and heel and then roll the stocking up your leg
- Smooth out any excess material making sure the heel and toe are in the correct position

While you are in hospital the nursing staff will help you with your stockings.

Your stockings must be worn at all times, but they can be removed for up to 30 minutes each day so you can have a bath or shower, and so the nursing staff can check your legs.

Regular checks when wearing your anti-embolic stockings

- Ensure that the tops of the stockings are not rolled over or turned down as this will form a tight band around your leg
- Avoid using creams, lotions or oils as they can damage the elastic thread
- The skin of your leg will be checked each day by a nurse who will keep a record of your condition
- If you suffer from any kind of skin irritation it could be that you are allergic to the lycra or elastic fibres
- It is very important to comply with the given advice

If you have any problems, please contact your GP or the nurse managing your care.

Care of your anti-embolic stockings

- Put on clean stockings regularly
- Stockings can be machine washed at 70ºC
- Do not dry stockings close to direct heat, such as radiators, as this will cause the stockings to shrink. They can be dried at temperatures that do not exceed 80ºC for 15-20 minutes

Risks associated with wearing anti-embolic stockings

The following risks are associated with wearing anti-embolic stockings:

- You may develop an allergic reaction to the stocking
- You may notice some pressure or redness over more bony areas
- You may notice changes to your circulation

Further information

If you have any questions, or would like more information, please contact the nurse or district nurse managing your care.

If you would like to contact our Patient Advice and Liaison Service (PALS) please telephone 01278 432022 or email pals@sompar.nhs.uk

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WARFARIN ADMINISTRATION RECORD

Somerset Partnership NHS
NHS Foundation Trust

Cross-reference this record on main Medication Administration Record (tick and initial on page 1 and "Warfarin as per chart" on page 2), and keep the two together. Give Warfarin at 6pm. If warfarin is temporarily withheld, write **'OMIT'**. Initial and date *all* entries. **For patients at high risk of bleeding: consult with Haematology before attempting rapid anticoagulation. Further guidance is available at the back of this record**

Name: ..... **DOB**: ..... **NHS No**: ..... **Hospital**: ..... **Ward**: ..... **GP / Consultant**: ..... (Or fix addressograph label)	**Check for Warfarin allergy** Initial: Date: **Starting Warfarin**: Adjust loading doses; Use Standard Initiation Schedule **Box A** (see overleaf) **(Not for AF)** **Continuing Warfarin:** Use Maintenance Dose Guide **Box B** (see overleaf)	Increase day 1 and 2 loading doses from 5mg to 10mg **ONLY IF** Age <60yrs and >60kg **AND** Euthyroid **AND** No interacting drugs **AND** No malignant disease **(If baseline INR >1.4 consult Haematologist)**	**Pre-admission warfarin daily dose:** (If known / applicable) ……mg **Baseline INR** (*MUST* be completed)**:** …… Initial: Date:

Indication (circle as appropriate)	DVT , PE & AF	Tissue Prosthetic Valves	Recurrent DVT / PE events on warfarin	Most mechanical prosthetic heart valves	Other (please specify) .....
Target INR (acceptable range)	2.5 (2 to 3)	2.5 (2 to 3)	3.5 (3 to 4)	3.5 (3 to 4)	……. (……)

Administration Record

Blood sample for INR§ testing				**INR result§**	**Warfarin dose** (mg)	**Prescriber** Initials / date	**Administration**		
Date taken	**Taken by** (initials)	**Venous** (tick)	**Near pt testing*** (tick)				**Date**	**Time**	**Given by** (initials)

§ if INR is ≥0.5 above or below the normal range document in the patient's yellow INR book and a repeat sample must be performed
*if INR ≥5.0 a venous sample must be taken and the prescriber and GP informed

	Patient counselled regarding Warfarin Treatment	Initial: Date:	Warfarin Book issued / updated	Initial: Date:	GP anticoagulation appointment booked (Speak directly to the GP if possible.)	Initial: Date:	Warfarin Chart faxed to GP	Initial: Date:

How to Use This Record

Box A: Starting Warfarin (not if sole indication is AF)

Standard Initiation Schedule for Warfarin (for patients whose baseline INR is <1.4)

Day		INR (Best checked before 11:00am)	Warfarin dose (mg)
One		<1.4	**5** (LD)
Two		<1.8	**5** (LD)
		1.8	1
		>1.8	0.5
Three		<2	**5** (LD)
		2 to 2.1	5
		2.2 to 2.3	4.5
		2.4 to 2.5	4
		2.6 to 2.7	3.5
		2.8 to 2.9	3
		3 to 3.1	2.5
		3.2 to 3.3	2
		3.4	1.5
		3.5	1
		3.6 to 4	0.5
		> 4	Omit Dose
Predicted maintenance dose	Four	< 1.4	>8
		1.4	8
		1.5	7.5
		1.6 to 1.7	7
		1.8	6.5
		1.9	6
		2 to 2.1	5.5
		2.2 to 2.3	5
		2.4 to 2.6	4.5
		2.7 to 3	4
		3.1 to 3.5	3.5
		3.6 to 4	3
		4.1 to 4.5	Omit dose, give 2mg next day
		> 4.5	Omit two doses then give 1mg

Box B: Continuing Warfarin

Maintenance Dose Guide (for dose adjustment of established Warfarin therapy)

Target INR 2.5

INR	Dose change (adjust to nearest mg)	Next INR test
< 1.5	30% increase	3 days **(2 days if potential drug interaction)**
1.5 to 2	20% increase	
2.1 to 3	No change	
3.1 to 4	20% reduction	
4.1 to 6	Stop warfarin. Redo INR at 48hrs (max). Restart (30% dose reduction) when INR <5	
> 6.1	Refer to over-anticoagulation guidance overleaf	

Target INR 3.5

INR	Dose change (adjust to nearest mg)	Next INR test
< 2	50% increase	3 days **(2 days if potential drug interaction)**
2.1 to 3	20% increase	
3.1 to 4	No change	
4.1 to 6	Stop warfarin. Redo INR at 48hrs (max). Restart (20% dose reduction) when INR <5.5	
> 6.1	Refer to over-anticoagulation guidance below	

Prescribing warfarin where the exclusive indication is Atrial Fibrillation (AF)

Do not rapidly anticoagulate patients with lone AF. Take a **'low and slow'** approach e.g. give 2mg daily, measure INR on day 5-7 and then adjust the dose according to the maintenance dose guide, Box B.

Likewise, do not rapidly re-anticoagulate patients with lone AF after therapy has been temporarily stopped. Simply restart the previous warfarin maintenance dose, measure the INR on day 7 and adjust the dose if necessary as above.

Continuing warfarin in those patients admitted on warfarin therapy

On admission check both INR and for signs of bleeding. If the INR is in range and clinically appropriate, prescribe the usual maintenance dose. Under-or-over anticoagulated patients should be carefully clinically assessed and doses adjusted using maintenance dose guide, Box B, adjusting doses to the nearest milligram.

Stopping warfarin prior to surgery / other procedures and restarting therapy after surgery / procedure

Frequently warfarin is temporarily stopped and restarted while patients are in hospital. For patients with AF see above.

For podiatric surgery - stop Warfarin 4 days pre-operatively (please check with surgeon) and INR to be checked on the morning of surgery.

Adverse event or adverse INR result	Actions
Major bleed	• Stop Warfarin.

	• **CALL 999**
INR >8 with minor or no bleeding	• Stop warfarin. Restart when INR <5. Daily INR mandatory. • Consider giving Phytomenadione (Vitamin K) 500 micrograms to 2.5mg IV or orally (if other bleeding risk factors present)
INR 6 to 8 with minor or no bleeding	• Stop warfarin. Restart when INR <5. Daily INR mandatory • Consider IV or oral Vit. K (500 micrograms – 1mg) if other bleeding risk factors present
INR < 6 but >0.5 above target	• Reduce dose or stop warfarin. Restart when INR <5
Unexpected bleed within target range	• Investigate possibility of underlying cause e.g. unsuspected renal or GI tract pathology