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|---|---|---|
| Title: | **ANTI EMBOLIC STOCKINGS, GUIDELINES FOR THE USE OF** | Ref No: 0393 Version 4 |
| | | Classification: Protocol |
| Directorate: | Organisation Wide | |
| | | Due for Review: 22/06/21 |
| Responsible for review | VTE Specialist Nurse<br>Head of Tissue Viability Services | Document Control |
| Ratified by: | Chief Nurse<br>Medical Director<br>Care and Clinical Policies Group | |
| Applicability | All Staff | |

Venous thromboembolism (VTE) is a major cause of death and morbidity in hospitalised patients but is potentially preventable (National Institute for Health and Clinical Excellence, 2010a).

Anti-embolic [AE] stockings reduce the risk of VTE by exerting graduated circumferential pressure, which increases blood flow velocity and promotes venous return. In preventing venous distension, stockings are thought to reduce subendothelial tears and inhibit the activation of clotting factors (NICE, 2010a).

The use of graduated compression stockings as a prophylactic deterrent against complications, such as deep vein thrombosis and pulmonary emboli, will only be effective if they are used in the correct way.

Correctly applied, they are a safe, non-invasive therapy for reducing the incidence of complications by the promotion of venous blood flow in the lower limbs.

AE stockings can be used as a therapy on their own or as an adjunct to heparin/anticogulation therapy in patients who have been clinically assessed.

A VTE risk assessment should be performed at pre-assessment clinic and on admission to identify patients at risk of venous thromboembolism in order to ascertain appropriate management.
For VTE risk assessment see drug chart.

Evidence supports the use of below knee anti-embolic stockings unless thigh length stockings are specifically requested either by the medical team or the anaesthetist.

**Anti-embolic stockings must be prescribed by a medical practitioner on the patient drug chart**

Anti-embolism stockings that provide graduated compression and produce a calf pressure of 14-15mmHg should be used.

**Responsibilities**

It is the responsibility of clinical managers to ensure healthcare workers undertaking this clinical skill have received sufficient and appropriate training. Registered nurses should have received training on the assessment, measuring and fitting of anti-embolic stocking before undertaking the task. The individual practitioner is responsible for ensuring that knowledge and skills are maintained through regular update and practice This should be reviewed annually. Anti-embolic stocking training is provided by the AES representative and can be contacted directly to arrange training. Contact details for the AES representative are available on the VTE intranet site – Anti-embolic Stockings

**Clinical indications for considering the use of anti-embolic stockings:-**

The risk of developing a deep vein thrombosis or pulmonary embolism is increased in patients who:-

- Active cancer or cancer treatment
- Age >60

- Critical care admission
- Dehydration
- Known thrombophilias
- Obesity (BMI ³ 30kg/m²)
- Pre-existing major medical illness e.g. cardiac, renal or respiratory failure, recent Myocardial infarction, active inflammatory bowel disease, nephrotic syndrome
- Personal history or first degree relative with history of VTE
- Thrombophilic drugs e.g. combined oral contraceptive, tamoxifen, HRT
- Varicose veins with phlebitis
- Prolonged immobility (mobility significantly reduced ³ 3 days or ongoing reduction in mobility relative to normal state)
- Temporary cessation of antiplatelet or anticoagulant treatment
- Severe or ongoing sepsis
- Pregnancy (see guideline 0428 Thromboembolism And Pregnancy – Risk, Assessment, Prophylaxis And Treatment)
- Acute surgical admissions with inflammatory or intra-abdominal condition
- For Stroke patients see Guideline 1307 – VTE Prophylaxis following Acute Stroke

**When to apply AE Stockings**

Prophylactic treatment should be started pre-operatively or as soon as the patient becomes immobile.

**ASSESSMENT**

***VTE Risk assessment (RA) on admission, and again within 24 hours is MANDATORY. Guidance is provided within the drug chart, and the RA boxes must be completed.***
***In order to reduce the risk of inappropriate therapy and also to provide good documentation of clinical decisions, it is just as important to document reasons for not prescribing VTE prophylaxis as it is to document prescribed therapy.***

Prior to application of AE stockings the legs must be checked for colour warmth and sensation. Pedal pulses must be palpable. This basic vascular assessment must be clearly recorded in the patient's drug chart.

Prior to the application of anti-embolic stockings it is very important to undertake a patient assessment, including a review of patient's notes in order to exclude the following conditions.

| CONDITION | RATIONALE |
|---|---|
| Suspected or proven peripheral arterial disease<br><br>Peripheral arterial bypass grafting<br><br>Peripheral neuropathy or other causes of sensory impairment | Peripheral circulation is impaired therefore anti-embolic stockings could compound the condition by further reducing the capillary and peripheral blood volume<br><br>Patients with altered sensation in the lower limbs will not be able to alert staff if stockings are too tight and causing tissue damage |
| Congestive Cardiac Failure / Pulmonary Oedema | AE stockings by improving the venous return, would further 'overload' the heart and pulmonary vessels leading to further congestion |

| CONDITION | RATIONALE |
|---|---|
| | |
| Diabetes | Diabetes itself is not a contraindication, but patients with diabetes may have peripheral neuropathy or peripheral arterial disease and this would be a contra-indication. An Ipswich touch toe test should be performed. |
| Any local skin conditions where stockings may cause further damage, for example fragile 'tissue paper' skin, dermatitis or recent skin grafting | AE stockings can be difficult to apply and have on occasions caused skin tears or exacerbated existing wounds by dragging of the skin when applied |
| Known allergy to material used in the manufacturer of the stocking | Mild or even severe allergic reactions and dermatitis may occur when stockings are in use |
| Unusual leg size, shape or major limb deformity preventing correct fit. | Incorrectly fitted stockings will not provide adequate treatment to prevent DVT and may increase the risks of tissue damage and pressure ulcers |

**If a patient has any of these contra-indications it is essential to liaise with relevant health care professional in order to discuss alternative prophylaxis if deemed appropriate.**

**MEASURING AND APPLICATION**

A Registered Nurse/Assistant Practitioner who has received appropriate training should measure patients ankle to determine the size of stockings required to meet the needs of the individual patient. Patients should be re-measured if there is any time delay between measurement and fitting of anti-embolic stockings.

AES stockings are available in various sizes ranging from ankle measurement of 16cm – 35cm. If patient measurement falls outside this range please inform the medical staff.

**Show patients how to use AE stockings correctly and ensure they understand that this will help to reduce their risk of developing a VTE.** All patients should receive information on discharge relating to the care of AE stockings. Patient information is supplied with the stockings.

**Ongoing management of patient who are wearing AE stockings:**

Once the need for anti-embolic stockings is identified, they should be worn at all times; except during personal hygiene procedures.

Every 12 hours patient's legs should be checked to ensure the hosiery is in place correctly (no wrinkles) and the patient does not report any pain or discomfort. If the patients reports any concerns, appropriate action should be taken.

Details of checks should be clearly recorded in the patient's drug chart or on relevant care plan

**Stockings should be removed daily to:**-

- Check the patient's skin condition for any red or dusky areas. Toes/legs must be checked for colour, warmth and sensation
- Allow the patient's legs to be washed.
- Ensure correct positioning of the stockings.
- Ensure correct fitting of the stockings.

A clean pair of stockings should be provided every 3 days or if soiled

Patient's limbs may need to be re-measured as the patient's condition changes, for example significant limb oedema can develop following joint replacement surgery.

**Discontinuing the use of AE stockings:**

The use of AE stockings should normally be discontinued when the patient has returned to their former state of mobility or an improved state of mobility.

NICE (2010a) defines significantly reduced mobility as "patients who are bed bound, unable to walk unaided or likely to spend a substantial proportion of the day in bed or in a chair".

You may need to consider discontinuing using the stockings if the patient shows any sign of the following conditions.

- Red marks on feet/legs
- Patient complains of stockings too tight
- Dusky/mottled skin on heels
- Pressure ulcers
- Rashes
- Tight band around top of stockings
- Wound breakdown under stockings
- Patient's unable to tolerate or wear the stockings correctly

**Any decision to remove AE stockings prior to this state of mobility MUST be approved by Senior Medical Staff and documented in the patient's medical records**.

**Patient Information:**

Patients must be given written information regarding the use of AE stockings.

If the patient needs AE stockings on discharge, give patients verbal and written information on caring for the AE stockings, which can be found with the product, and checking their skin, duration as per medical advise/guidance.

For further information on VTE risk assessment please see Guideline 2165 – Prevention of VTE in Patients Admitted to Hospital.

# Protocols & Guidelines – Document Control

This is a controlled document. It should not be altered in any way without the express permission of the author or their representative. On receipt of a new version, please destroy all previous versions.

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|---|---|---|---|
| Ref: 0393 | Title: Anti-Embolic Stockings, Guidelines for the use of | | |
| Date of Issue: | 22 June 2018 | Next Review Date: | 22 June 2021 |
| Version: | 4 | | |
| Author: | VTE Specialist Nurse<br>Head of Tissue Viability Services | | |
| Index: | Organisation Wide | | |
| Classification: | Protocol | | |
| Applicability: | Trustwide | | |
| Equality Impact: | The guidance contained in this document is intended to be inclusive for all patients within the clinical group specified, regardless of age, disability, gender, gender identity, sexual orientation, race and ethnicity & religion or belief. | | |
| Evidence based: | Yes | | |
| References: | 1. Autar R (2009) A review of the evidence for the efficacy of anti-embolism stockings in venous thrombo-embolism prevention. *J Orthopaed Nurs* 13(1): 41–49<br><br>2. Benko T et al (1999) The physiological effect of graded compression stockings on blood flow in the lower limb: an assessment with colour Doppler ultrasound. Phlebology; 14: 17-20<br><br>*3.* Cock KA (2006) Anti-embolism stockings: are they used effectively and correctly? *Br J Nurs* 15(6; Supp): S4–S12<br><br>4. Holford C P, Graduated Compression for Preventing Deep Venous Thrombosis, British Medical Journal 1976; ii; 969-970.<br><br>5. Kakkar V –v- et al, Natural History of Post Operative Deep Vein Thrombosis. Lancet 1969;230-232<br><br>6. MJ LeF. Porteous et al, British Journal of Surgery 1989; Vol 6, March 296-297.<br><br>7. National Institute for Health and Clinical Excellence (2010a) Venous Thromboembolism – Reducing the Risk. London: NICE<br><br>8. National Institute for Health and Clinical Excellence (2010b) Venous Thromboembolism Prevention Quality Standard.London: NICE.<br><br>9. Tsapogas MJ et al, Post-operative Venous Thrombosis and the Effect of Prophylactic Measures Archives of Surgery. 1971; 103: 561-7.<br><br>10. Turner GM et al, The Efficacy of Graduated Compression Stockings in the Prevention of Deep Vein Thrombosis after Major Gynaecological Surgery. British. Journal of Obstetrics and Gynaecology. 1984; 91: 588-591. | | |

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|---|---|---|---|
| Produced following audit: | No | | |
| Audited: | No | | |
| Approval Route: | See ratification | Date Approved: | 19 June 2018 |
| Approved By: | Chief Nurse | | |
| | Medical Director | | |
| | Care and Clinical Policies Group | | |
| Links or overlaps with other policies:<br>0428 Thromboembolism And Pregnancy – Risk, Assessment, Prophylaxis And Treatment;<br>1307 – VTE Prophylaxis following Acute Stroke<br>2165 - VTE - Prevention of VTE in Patients Admitted to Hospital | | | |
| All TSDFT Trust strategies, policies and procedure documents. | | | |

**PUBLICATION HISTORY:**

| Issue | Date | Status | Authorised |
|---|---|---|---|
| 1 | May 1997 | New | Nursing Advisory Committee<br>Director of Nursing and Quality<br>Medical Director |
| 2 | February 2000 | Revised | Clinical Nurse Specialist, Tissue Viability<br>Director of Nursing and Quality<br>Medical Director |
| 2 | May 2002 | Date change | Clinical Nurse Specialist, Tissue Viability<br>Director of Nursing and Quality<br>Medical Director |
| 3 | 18 December 2003 | Revised | Clinical Nurse Specialist, Tissue Viability<br>Director of Nursing & Quality<br>Medical Director |
| 3 | 21 January 2008 | Revised | Clinical Nurse Specialist, Tissue Viability<br>Director of Nursing & Quality<br>Medical Director |
| 3 | 13 November 2009 | Document Information | |
| 3 | 31 December 2014 | Revised | Chief Nurse<br>Medical Director |
| 4 | 22 June 2018 | Revised | Chief Nurse<br>Medical Director<br>Care and Clinical Policies Group |

## The Mental Capacity Act 2005

The Mental Capacity Act provides a statutory framework for people who lack capacity to make decisions for themselves, or who have capacity and want to make preparations for a time when they lack capacity in the future. It sets out who can take decisions, in which situations, and how they should go about this. It covers a wide range of decision making from health and welfare decisions to finance and property decisions

Enshrined in the Mental Capacity Act is the principle that people must be assumed to have capacity unless it is established that they do not. This is an important aspect of law that all health and social care practitioners must implement when proposing to undertake any act in connection with care and treatment that requires consent. In circumstances where there is an element of doubt about a person's ability to make a decision due to 'an impairment of or disturbance in the functioning of the mind or brain' the practitioner must implement the Mental Capacity Act.

The legal framework provided by the Mental Capacity Act 2005 is supported by a Code of Practice, which provides guidance and information about how the Act works in practice. The Code of Practice has statutory force which means that health and social care practitioners have a legal duty to have regard to it when working with or caring for adults who may lack capacity to make decisions for themselves.

**"The Act is intended to assist and support people who may lack capacity and to discourage anyone who is involved in caring for someone who lacks capacity from being overly restrictive or controlling. It aims to balance an individual's right to make decisions for themselves with their right to be protected from harm if they lack the capacity to make decisions to protect themselves". (3)**

All Trust workers can access the Code of Practice, Mental Capacity Act 2005 Policy, Mental Capacity Act 2005 Practice Guidance, information booklets and all assessment, checklists and Independent Mental Capacity Advocate referral forms on iCare

http://icare/Operations/mental_capacity_act/Pages/default.aspx

## Infection Control

All staff will have access to Infection Control Policies and comply with the standards within them in the work place. All staff will attend Infection Control Training annually as part of their mandatory training programme.

NHS South Devon and Torbay Clinical Commissioning Group
Torbay and South Devon NHS
NHS Foundation Trust

## Rapid (E)quality Impact Assessment (EqIA) *(for use when writing policies)*

| **Policy Title** (and number) | ***0393 Anti Embolic Stockings*** | **Version and Date** | *Version 4 June 2018* |
|---|---|---|---|
| **Policy Author** | VTE Nurse & Tissue Viability Nurse | | |

An (e)quality impact assessment is a process designed to ensure that policies do not discriminate or disadvantage people whilst advancing equality. Consider the nature and extent of the impact, not the number of people affected.

**Who may be affected by this document?**

| | | |
|---|---|---|
| Patients/ Service Users ☒ | Staff ☐ | Other, please state… ☐ |

**Could the policy treat people from protected groups less favorably than the general population?**
***PLEASE NOTE: Any 'Yes' answers may trigger a full EIA and must be referred to the equality leads below***

| | | | | | |
|---|---|---|---|---|---|
| Age | Yes ☐ No☒ | Gender Reassignment | Yes ☐ No☒ | Sexual Orientation | Yes ☐ No☒ |
| Race | Yes ☐ No☒ | Disability | Yes ☐ No☒ | Religion/Belief (non) | Yes ☐ No☒ |
| Gender | Yes ☐ No☒ | Pregnancy/Maternity | Yes ☐ No☒ | Marriage/ Civil Partnership | Yes ☐ No☒ |

| | |
|---|---|
| **Is it likely that the policy could affect particular 'Inclusion Health' groups less favorably than the general population?** (substance misuse; teenage mums; carers[1]; travellers[2]; homeless[3]; convictions; social isolation[4]; refugees) | Yes ☐ No☒ |

**Please provide details for each protected group where you have indicated 'Yes'.**

**VISION AND VALUES:** Policies must aim to remove unintentional barriers and promote inclusion

| | |
|---|---|
| Is inclusive language[5] used throughout? | Yes ☒ No☐ NA ☐ |
| Are the services outlined in the policy fully accessible[6]? | Yes ☒ No☐ NA ☐ |
| Does the policy encourage individualised and person-centred care? | Yes ☒ No☐ NA ☐ |
| Could there be an adverse impact on an individual's independence or autonomy[7]? | Yes ☐ No☒ NA ☐ |

**EXTERNAL FACTORS**

| | |
|---|---|
| **Is the policy a result of national legislation which cannot be modified in any way?** | Yes ☒ No☐ |

**What is the reason for writing this policy?** (Is it a result in a change of legislation/ national research?)

NICE recommends the use of AES in the prevention of VTE

**Who was consulted when drafting this policy?**

| | | |
|---|---|---|
| Patients/ Service Users ☐ | Trade Unions ☐ | Protected Groups (including Trust Equality Groups) ☐ |
| Staff ☒ | General Public ☐ | Other, please state… ☐ |

**What were the recommendations/suggestions?**

Changes made after discussion with VTE ambassadors (staff using the guideline).

| | |
|---|---|
| **Does this document require a service redesign or substantial amendments to an existing process?** ***PLEASE NOTE: 'Yes' may trigger a full EIA, please refer to the equality leads below*** | Yes ☐ No☒ |

**ACTION PLAN:** Please list all actions identified to address any impacts

| **Action** | **Person responsible** | **Completion date** |
|---|---|---|
| | | |
| | | |

**AUTHORISATION:**
By signing below, I confirm that the named person responsible above is aware of the actions assigned to them

| | | | |
|---|---|---|---|
| **Name of person completing the form** | VTE Specialist Nurse | **Signature** | |
| **Validated by (line manager)** | Head of Tissue Viability | **Signature** | |

**Clinical and Non-Clinical Policies – New Data Protection Regulation (NDPR)**

Torbay and South Devon NHS Foundation Trust (TSDFT) has a commitment to ensure that all policies and procedures developed act in accordance with all relevant data protection regulations and guidance. This policy has been designed with the EU New Data Protection Regulation (NDPR) in mind and therefore provides the reader with assurance of effective information governance practice.

NDPR intends to strengthen and unify data protection for all persons; consequently, the rights of individuals have changed. It is assured that these rights have been considered throughout the development of this policy.

Furthermore, NDPR requires that the Trust is open and transparent with its personal identifiable processing activities and this has a considerable effect on the way TSDFT holds, uses, and shares personal identifiable data. The most effective way of being open is through data mapping. Data mapping for NDPR was initially undertaken in November 2017 and must be completed on a triannual (every 3 years) basis to maintain compliance. This policy supports the data mapping requirement of the NDPR.

For more information:

- Contact the Data Access and Disclosure Office on dataprotection.tsdft@nhs.net,
- See TSDFT's Data Protection & Access Policy,
- Visit our GDPR page on ICON.