Lincolnshire Community Health Services NHS Trust

Prevention of Venous Thromboembolism Policy

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Lincolnshire Community Health Services Trust
Policy for Prevention of Venous Thromboembolism

Version Control Sheet

Version	Section / Para / Appendix	Version / Description of Amendments	Date	Author / Amended by
1	New Policy		28/02/2012	Dr P Mitchell
2	Full review and update with changes to Footers, Policy Statement, Section 5.2, 7a, Appendix 3	Change of CEO to Andrew Morgan, P4, removal of 'Training on VTE prevention and management will become part of clinical mandatory training', Section 5.2 expanded to include further detail in the use of AES, Section 7a added 'patients at the end of life', Appendix 3 – removal of 'major trauma and spinal injury flow chart' as not relevant for LCHS staff, Appendix 3 – removal of ' Critical Care flow chart' as not relevant for LCHS staff,		
2.1		Extension	30.1.17	Corporate Assurance Team
2.2		Extension	May 2017	Corporate Assurance Team
2.3		Extension	May 2017	Corporate Assurance Team
2.4		Extension	Nov 17	Corporate Assurance Team
3	Section 1 – NICE Guidance 92 changed to NICE NG89	New NICE guidelines replaces previous guidance	02/06/18	Matt MacKenzie
3	Appendix 3- Paragraph 1	Age changed from "over 18" to "over 16"	02/06/18	Matt MacKenzie
3	Page 24 – Paragraph 5	Fondaparinux – amended to reflect use for patients averse to	02/06/18	Matt MacKenzie

		porcine products. (No longer requires haematology approval)		
3	Page 11 – section 9	Inserted new wording to consider transfer of patients with PE to acute setting for management	02/06/18	Matt MacKenzie
3	Page 12 – section10	Changed wording from “load with warfarin” to “offer choice of treatment” (in line with NICE guidance)	02/06/18	Matt MacKenzie
3	Appendix 4	Journal article from 2005 removed and replaced with NICE guidance CG144 (up to date guidance regarding VTE treatment)	02/06/18	Matt MacKenzie
3	Page 19 – final paragraph	“Supporting evidence” replaced with current NICE guidance.	02/06/18	Matt MacKenzie
3	Appendix 2	Patient information leaflet replaced with current version	02/06/18	Matt MacKenzie
3	Appendix 3	9 flow charts removed and replaced with current NICE guidance (redacted to reflect patients suitable for community hospital)	02/06/18	Matt MacKenzie
3	Page 30	Removal of statement requiring “haematology approval” for use of Fondaparinux.	02/08/16	Matt MacKenzie
3	Page 30	Statement regarding Rivaroxaban amended to reflect change of use and introduction of other ‘Novel anticoagulants’	02/06/18	Matt MacKenzie
3	Page 30	Caveat added for altering prescription dose of LMWH based upon bodyweight. Not licenced use but commonly used by other NHS Trusts locally & nationally.	02/06/18	Matt MacKenzie

4	Throughout	Complete policy, reformatting.	May 2020	Helen Oliver
4		Updated reporting process and moved to monitoring compliance section	May 2020	Helen Oliver
4	Section 1	Introduction revised	May 2020	Helen Oliver
4	Section 2	Previous Section 2 Medicine management committee removed	May 2020	Helen Oliver
4	Section 3	New Training section	May 2020	Helen Oliver Ruth Cocks
4	Section 4	Clarification on VTE risk assessment and patients who are at risk of bleeding (originally Appendix 3)	May 2020	Sue Kinder
4	Section 5	Mechanical Thromboprophylaxis – training needed for fitting of anti-embolism stockings Removal of Intermittent pneumatic compression devices Definition of mechanical and pharmacological choices Rewritten the pharmacological VTE prophylaxis treatments Extended treatments removed Special groups and dose adjustments of LMWH for the elderly or those of low body weight removed Addition: Information regarding patients recently diagnosed with Atrial Fibrillation who are not a candidate for warfarin or that warfarin is not appropriate for the patient.	May 2020	Helen Oliver Claire Rogers Janine Elson Sue Kinder

		Addition of signs and symptoms of VTE with reference to G-CS-SOP 106 and referenced with National guidance		
4	Section 6 In-patients	Addition of using pharmacological VTE prophylaxis for surgical or medical patients, start it as soon as possible and within 14 hours of admission Information regarding patients with cancer and renal impairment moved from appendices Patients who are terminal or on an end of life pathway it is not appropriate to complete a risk assessment, do not use pharmacological or mechanical thromboprophylaxis. seek expert guidance from the patient's haematologist before initiating any new treatment	May 2020	Laura Dilley Mat Mackenzie Helen Oliver Janine Elson Sue Kinder
4	Section 5	Updated with further information relating to prevention Patients with a spinal injury should only use anti-embolism stockings in a specialist spinal injury unit and after multidisciplinary team discussion	May 2020	Claire Rogers Laura Dilley
4	In – Patient Section 6	Insertion of the reference to NICE Quality Statement 144	May 2020	Helen Oliver Sue Kinder
4	In-Patient Section 6	New section of Covid-19	May 2020	Helen Oliver
4	In-Patient Section 6 Cancer patient	aspirin removed	May 2020	Claire Rogers

4	In Patient Section 6	Patients admitted for Elective Surgery heading changed to same day admission for surgery and section re written to clarify care	May 2020	Helen Oliver
4	In- Patient Section 6	Clarification on information relating to investigating Hospital Acquired thrombosis	May 2020	Helen Oliver
4	Section 7	New section ; unplanned services and links to SOPs G_CS_105/106	May 2020	Helen Oliver
4	Section 9	Addition of signs and symptoms of VTE under the heading procedure to be followed if VTE suspected	May 2020	Helen Oliver Laura Dilley
4	Section 10	Monitoring updated	May 2020	Helen Oliver Sue Kinder
4	Appendix 1	Competences Assessment Tool and Statement of Completion	May 2020	Helen Oliver
4	Appendix 3	Leaflet information updated	May 2020	Helen Oliver
4	Equality and Diversity	Updated	May 2020	Helen Oliver

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Policy for Prevention of Venous Thromboembolism
Policy Statement

Background

The purpose of this policy is to provide guidance that ensures all staff with clinical responsibilities working for Lincolnshire Community Health Services NHS Trust maintain an active awareness of the risks of venous thromboembolism (VTE) and take appropriate action to assess the risk for all patients under their care and initiate preventative measures to reduce that risk in proportion to the risk identified

Statement

Lincolnshire Community Health Services NHS trust will develop local standard operating procedures that ensure patients are assessed for their risk of VTE and prescribe the appropriate interventions for the management of those risks taking into account individual patients' needs and other associated healthcare risks.

Responsibilities

Compliance with the policy will be the responsibility of all Lincolnshire Community Health Services clinical staff. Authors of operating procedures designed to implement policy are responsible for undertaking appropriate consultation with clinical staff during the development of guidelines and procedures. Service leads are responsible for ensuring local procedures are relevant and proportionate to the service needs and to ensure audit processes are in place that evidence concordance with local procedures and trust policy.

Training

Additional time for all staff to read manufacture's instruction and complete competence document. Additional time for registered staff for eLearning module.

Dissemination

Website; any changes of information is through the Communication team

Resource implication

No additional resources required

Consultation

It is expected that all local standard operating procedures are deployed following consultation with medical and nursing teams or their relevant professional leads

1. Introduction

VTE prevention has been recognised as a clinical priority for the NHS by the National Quality Board and the NHS Leadership Team. Venous Thromboembolism, or VTE as it is known, is a collective term for deep vein thrombosis (DVT) and pulmonary embolism (PE). VTE is a significant cause of mortality, long-term disability and chronic ill-health problems, many of which are avoidable. It has been estimated that the management of hospital associated VTE costs the NHS £millions per year

VTE prevention is an international patient safety issue. The incidence of Venous Thromboembolism is 1-2 per 1,000 of the population and the risk increases with age.

1 in 20 people will have a VTE at some time in their life and approximately half of the cases are associated with prior hospitalisation for medical illness or surgery. More than half the cases of VTE are attributable to hospitalisation and crucially, at least two thirds of these events are potentially preventable. The prevention of VTE has been identified as the most important safety practice in our hospitals and is recognised as a significant international patient safety issue.

The appropriate use of thromboprophylaxis will:

Reduce morbidity due to VTE
Reduce mortality rates due to VTE
Reduce the cost of treatment of VTE

NICE Guideline NG89– "Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism" August 2019 gives clear guidance regarding national standards including recommendations on assessing and reducing the risk of VTE in patients admitted to hospital and offers guidance on the most clinically and cost-effective measures for VTE prophylaxis (preventative treatment).This policy summarises best practice based on current evidence for the prevention of Hospital acquired VTE.

2. Definitions

- Major bleeding: a bleeding event that results in one or more of the following:
    - death
    - a decrease in haemoglobin concentration of > 2 g/dl
    - transfusion of > 2 units of blood
    - bleeding into a retroperitoneal, intracranial or intraocular site
    - a serious or life-threatening clinical event
    - a surgical or medical intervention
- Renal failure: estimated glomerular filtration rate (eGFR) <30 ml/min/1.73 m2
- Significantly reduced mobility: bed bound, unable to walk unaided or likely to spend a substantial proportion of the day in a bed or in a chair

Abbreviations

BMI: body mass index
DVT: deep vein thrombosis
Fondaparinux: fondaparinux sodium
HRT: hormone replacement therapy
INR: international normalised ratio (standardised laboratory measure of blood coagulation)
LMWH: low molecular weight heparin
PE: pulmonary embolism
UFH: unfractionated heparin
VTE: venous thromboembolism

3. Training

Anti-embolism stockings must be fitted by staff able to demonstrate competence and knowledge on their use and as per manufacture instructions. Refer to Competences Assessment Tool and Statement of Completion (Appendix 1).

4. Risk Assessment for all Patients on Admission to Hospital

All patients must be risk assessed on admission to and have this assessment reviewed within 24 hours of admission. Inpatients must be re-assessed for risk factors every 72 hours or earlier if clinically indicated.

Medical patients must be assessed for patient related risk factors for VTE using a standard risk assessment tool (Appendix 1) available on SystmOne. If VTE prophylaxis is withheld for any reason (e.g. bleeding risk) this must be documented clearly in the patient's health records.

The responsibility for documenting the risk assessment and prescribing thromboprophylaxis lies with the admitting doctor or Advanced Clinical Practitioner.

If using pharmacological VTE prophylaxis for surgical or medical patients, start it as soon as possible and within 14 hours of admission.

4.1Assessing the Risk of VTE and bleeding

Assess all patients on admission to identify those who are at increased risk of VTE (Appendix 2)

Regard medical patients as being increased risk of VTE if they:

- have had or are expected to have significantly reduced mobility for 3 days or more **or**
- are expected to have ongoing reduced mobility relative to their normal state and have one or more of the risk factors

Regard surgical patients and patients with trauma as being at increased risk of VTE if they meet one of the following criteria:

- surgical procedure with a total anaesthetic and surgical time of more than 90 minutes or 60 minutes if the surgery involves the pelvis or lower limb
- expected significant reduction in mobility e.g. lower leg plaster- cast

- one or more of the risk factors (remove)

4.2 VTE risk factors

- Active cancer or cancer treatment
- Age > 60 years
- Critical care admission
- Dehydration
- Known thrombophilias
- Obesity (BMI >30 kg/m2)
- One or more significant medical co-morbidities (for example: heart disease; metabolic, endocrine or respiratory pathologies; acute infectious diseases; inflammatory conditions)
- Personal history or first-degree relative with a history of VTE
- Use of HRT
- Use of oestrogen-containing contraceptive therapy
- Varicose veins with phlebitis

Assess all patients for risk of bleeding before offering pharmacological VTE prophylaxis. Do not offer pharmacological VTE prophylaxis to patients with any of the risk factors for bleeding unless the risk of VTE outweighs the risk of bleeding

4.3 Patients who are at risk of bleeding

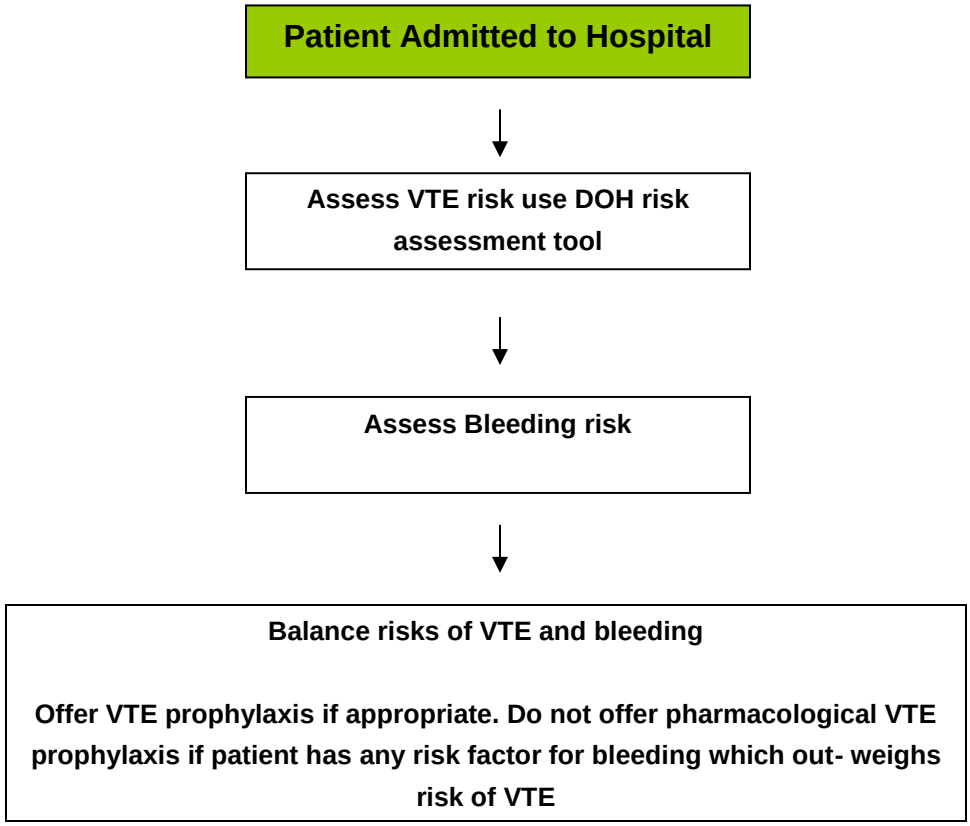
All patients who have any of the following:

- Active bleeding
- Acquired bleeding disorders (such as acute liver failure)
- Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with INR >2)
- Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours or expected within the next 12 hours
- Acute stroke
- Thrombocytopenia (platelets <75 x 109/l)
- Uncontrolled systolic hypertension (> 230/120 mmHg)
- Untreated inherited bleeding disorders (such as haemophilia or von Willebrand's disease)

Reassess patients' risks of bleeding and VTE within 24 hours of admission and whenever the clinical situation changes to:

- Ensure that the methods of VTE prophylaxis being used are suitable
- Ensure that VTE prophylaxis is being used correctly
- Identify adverse events resulting from VTE prophylaxis

4.4 Care Pathway



5. Reducing the risk of VTE.

If appropriate, all patients will be encouraged to mobilise as soon as possible. Patients who are unable to mobilise will be encouraged to do regular leg exercises.

Ensure patients are adequately hydrated

Information for Patients to reduce risks of VTE

All patients must be given verbal information on admission about the risks of VTE and the effectiveness of prophylaxis. Written information should be available to patients if requested in the form of a leaflet (Appendix 2) arrange appx numbers

- the risks and possible consequences of VTE
- the importance of VTE prophylaxis (for example, anti-embolism stockings,)
- how patients can reduce their risk of VTE (such as keeping well hydrated and, if possible exercising and becoming more mobile).

Surgical patients must be given verbal and written information on the following, as part of their discharge plan:

- How to reduce the risk of DVT (such as keeping hydrated, exercise, mobility)
- Immobility associated with continuous travel of more than 3 hours in the 4 weeks after surgery may increase the risk of VTE
- The signs and symptoms of DVT and pulmonary embolism (PE)
- The correct use of extended prophylaxis (if appropriate)
- The implications of not using prophylaxis (if appropriate)
- The importance of seeking help if any concerns relating to DVT and PE or problems using VTE prophylaxis

5.1 Methods of VTE Prophylaxis

Choice of VTE prophylaxis either

- mechanical VTE prophylaxis of anti- embolism stockings (thigh or knee length) decision being based on clinical condition/ surgical procedure

- pharmacological VTE prophylaxis on clinical condition (for example, renal failure) and patient preference.

Before starting VTE prophylaxis, offer verbal and written information on:

- risks and possible consequences of VTE
- importance of VTE prophylaxis and its possible side effects
- correct use of VTE prophylaxis
- how to reduce risk of VTE

5.2 Mechanical thromboprophylaxis is recommended primarily where the bleeding risk is high or as adjunct to pharmacological measures. The options for mechanical thromboprophylaxis include:

Anti-embolism stockings (AES)

Do not offer anti-embolism stockings to patients with:

- Suspected or proven peripheral disease
- Peripheral arterial bypass grafting
- Peripheral neuropathy or other causes of sensory impairment
- Local condition in which stockings may cause damage, such as “fragile tissue paper” skin, dermatitis, gangrene or recent skin graft
- Known allergy to material of manufacture
- Pulmonary oedema from cardiac failure
- Cardiac failure
- Acute stroke
- Severe leg oedema or pulmonary oedema from congestive heart failure
- Unusual leg size or shape
- Major limb deformity preventing correct fit

Patients with a spinal injury should only use anti-embolism stockings in a specialist spinal injury unit and after multidisciplinary team discussion

Patients who need anti-embolism stockings should have their legs measured and that the correct size of stocking is provided (refer to training section and related competences).

Staff should:

- Use caution and clinical judgement when applying anti-embolism stockings over venous ulcers or wounds
- Measure legs and use correct stocking size. Staff who fit stockings should be trained in their use and should show patients how to use them
- If oedema or postoperative swelling develops, ensure legs are re-measured and stockings refitted
- If arterial disease suspected, seek expert opinion before fitting stockings
- Use stockings that provide graduated compression and produce a calf pressure of 14-15 mmHg
- Encourage patients to wear the stockings day and night from admission until they no longer have significantly reduced mobility
- Remove stockings daily for hygiene purposes and to inspect skin condition. If patient has significant reduction in mobility, poor skin integrity or sensory loss, inspect skin in two or three times per day, particularly over heels and bony prominences
- Discontinue use of stockings if there is marking, blistering or discolouration of skin, particularly over heels and bony prominences, or if patient has pain or discomfort. If suitable, offer intermittent pneumatic compression or foot impulse devices as alternative
- Show patients how to use anti-embolism stockings correctly and ensure they understand that this will reduce their risk of developing VTE
- Monitor use of anti-embolism stockings and offer assistance if they are not being worn correctly

5.3 Pharmacological thromboprophylaxis

Offer pharmacological VTE prophylaxis to general medical patients assessed to be at increased risk of VTE. The choice of anticoagulant depends on a number of factors including weight of the patient, renal function and patient preference.

First line: Enoxaparin

Second line: Heparin calcium, if eGFR is below 20mL/min

Second line: Fondaparinux, if patient is averse to the use of porcine products (for cultural /religious reasons)

Enoxaparin dose given subcutaneously depends on:

- Indication: therapeutic or prophylactic. For therapeutic doses see BNF. For prophylactic doses see below.
- Weight of patient:
    - <50Kg Enoxaparin 20mg once daily (usually 18:00)
    - 50-100Kg Enoxaparin 40mg once daily (usually 18:00)

    - 100-150Kg Enoxaparin 40mg twice daily (Usually 08:00 and 18:00)

- Renal function
    - eGFR over 30mL/min Enoxaparin 40mg once daily
    - eGFR 20-30mL/min Enoxaparin 20mg once daily
    - eGFR less than 20mL/min use Heparin calcium 5000 units subcutaneously twice daily

Fondaparinux for VTE prophylaxis:

- eGFR over 50mL/min 2.5mg subcutaneously once daily
- eGFR 20-50mL/min 1.5mg subcutaneously once daily
- eGFR less than 20mL/min Fondaparinux should not be used.

N.B. If there is any doubt about the accuracy of the eGFR measurement, (e.g. very small or large patient) then the creatinine clearance should be calculated using the Cockcroft-Gault formula (2020)

If doses are altered it is very important that the dose is calculated accurately based on a recent patient weight and not estimated. Only competent practitioners should consider 'off license use of heparins'. Any deviation from standard manufacture's doses will require a second checker.

For further information refer to Products and Dosing guidance Appendix 3 and NICE pathways for management and treatment guidance https://pathways.nice.org.uk/pathways/venous-thromboembolism

Potential side effects of Heparin:

- Bleeding – LMWH should be stopped. Consideration of use of a reversal agent depends on the severity of the bleeding. Protamine sulphate will only partially reverse the anticoagulant effect. The on-call laboratory Haematologist or prescriber on call is available for advice.

- Heparin Induced Thrombocytopenia (HIT) – All patients should have a baseline platelet count. HIT is much less likely with LMWH than with Unfractionated heparin but should always be considered if the platelet count falls by >50%. Always discuss management of these patients with the on call laboratory haematologist

- Osteoporosis – Heparins are associated with an increased risk of osteoporosis and bone fracture with prolonged use (>12 weeks at prophylactic doses). This risk is greater in pregnancy and older women.

Monitor Full Blood Count (FBC) 5 days following commencing thromboprophylaxis treatment and then weekly

All the surgical patients on enoxaparin should have platelet counts (FBC) done around the 5th post-operative day. If the platelet count falls to less than 50% of the baseline (pre-op pre-assessment clinic FBC) or the patient develops a new thrombocytopenia (i.e. count below the lower limit of normal) then a diagnosis of HIT (Heparin Induced Thrombocytopenia) should be excluded.

Patients with mild to moderate renal hepatic impairment can receive the normal dose.

Patients with more severe renal or hepatic impairment should be assessed before prescribing.

5.4 Novel anticoagulants

Rivaroxaban, Apixaban, Edoxaban Dabigatran & other novel anticoagulants may be prescribed for the prevention of VTE under specific circumstances e.g. If the patient has been recently diagnosed with Atrial Fibrillation and is not a candidate for warfarin or that warfarin is not appropriate for the patient. For further information refer to Lincolnshire Joint Formulary (https://lincolnshire-pacef.nhs.uk/key/pacef/994-pace-bulletin-doacs-vol-13-no-10-sept-2019/file) and NICE Guidance regarding 'Anticoagulation- oral' (2019). https://www.nice.org.uk/advice/ktt16/resources/anticoagulants-including-directacting-oral-anticoagulants-doacs-pdf-58757956094149

5.5 VTE prophylaxis for patients already having anti-platelet or anticoagulant therapy to treat other conditions

Consider offering additional mechanical or pharmacological VTE prophylaxis if patient is at risk of VTE. Take into account risk of bleeding and of co-morbidities such as arterial thrombosis.

- **If the risk of VTE outweighs the risk of bleeding**, consider offering pharmacological VTE prophylaxis according to the reason for admission
- **If the risk of bleeding outweighs the risk of VTE**, offer mechanical VTE prophylaxis

Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are taking vitamin K antagonists and who are within their therapeutic range, providing anticoagulant therapy is continued

Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are having full anticoagulant therapy for example fondaparinux sodium, LMWH or Unfractionated Heparin (UFH)

6. Inpatients Special Groups

6.1 Patients with Suspected or Confirmed COVID- 19

British Thoracic Society (updated May 2020) Guidance on Venous Thromboembolic Disease in patients with COVID-19

Emerging data and clinical experience suggest an increased prevalence of venous thromboembolic events in COVID-19, especially in patients with more severe disease.
Given the apparent increased incidence of VTE in COVID-19, clinicians should have a low threshold for suspecting VTE. PE should be considered if sudden worsening of hypoxaemia, blood pressure or tachycardia occurs, or if oxygen requirements are disproportionate to the severity of pneumonia on CXR.
VTE who may benefit from intermediate or full-dose LMWH, it is therefore not possible to advocate any particular approach and as there is at the moment limited data, specialist advice for treatment should be sought.

Extended thromboprophylaxis on discharge can be considered if the patient is considered at high risk of VTE (e.g. past history VTE, cancer, significantly reduced mobility) and the risk of VTE is felt to outweigh the risk of bleeding. The nature and duration of thromboprophylaxis in patients recovering from COVID-19 pneumonia is not clear but a standard prophylactic dose of LMWH or DOAC for 4 weeks may be a required.

6.2 Patients admitted who are having Palliative Care

Review decisions about VTE prophylaxis for patients in palliative care taking into account the views of patients, their families and/or carers and the multidisciplinary team
Decisions should be reviewed every 72 hours or earlier if the patient's condition improves.
Consider pharmacological VTE prophylaxis for people who are having palliative care. Take into account temporary increase in thrombotic risk factors, risk of bleeding, likely life expectancy and the views of the person and their family members or carers (as appropriate NICE NG89)

For patients undergoing palliative care with potentially reversible acute pathology and is at increased of VTE

6.3 Patients admitted at the End of Life (EoL)

For patients undergoing terminal care or on an end of life pathway it is not appropriate to complete a risk assessment, do not use pharmacological or mechanical thromboprophylaxis. Involve the dying person's preferences. For recommendations on decision making refer to NICE Care of dying adults in the last days of life, Quality standard [QS144] Published date: 02 March 2017

6.4 Patients admitted with Cancer

Patients with active cancer and particularly those with central venous lines and those receiving chemotherapy are at a significantly increased risk for VTE. Patients with cancer must be managed with specialists services input

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 or LMWH.

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.

6.5 Patients admitted with Renal Impairment

If using pharmacological VTE prophylaxis for people with renal impairment, choose either LMWH or Unfractionated Heparin (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.

6.6 Pregnant Patients

Pregnancy increases risk of thromboembolism in combination with other risk factors and dependant on gestation. Advice should be sought from maternity unit if patient presents in second or third trimester with a view to transferring patient to an acute unit should admission be indicated.

6.7 Patients for Same day admission and day surgery

Compared to inpatient surgery, day case surgery generally confers a lower (but not zero) VTE risk. Therefore these patients should be similarly risk assessed for VTE and bleeding risk, and if appropriate anti-embolism stockings (AES) and LMWH prescribed.

Do not routinely offer pharmacological or mechanical VTE prophylaxis to patients having surgery with local anaesthesia by local infiltration with no limitation of mobility
Surgical patients must be informed that immobility associated with continuous travel of more than 3 hours in the 4 weeks before surgery may increase the risk of VTE.

Advise women to consider stopping oestrogen-containing contraceptives or HRT 4 weeks before surgery. Progestogen only contraceptives are safe to continue

Assess risks and benefits of stopping pre-existing anti-platelet therapy 1 week before surgery. Involve the multidisciplinary team in the assessment.

In patients perceived to be at very high VTE risk, consideration can be given to extending LMWH prophylaxis post discharge.

For patients admitted on the day of surgery who require enoxaparin thromboprophylaxis:

- AES at admission
- Enoxaparin started after surgery at the later of: 4 hours post-operatively or 18.00hrs. Then at 18.00hrs on subsequent days

6.8 Patients admitted with Hospital Acquired Thrombosis (HAT)

A hospital acquired thrombosis (DVT or PE) is defined as occurring within 3 months of a hospital admission. A clinical incident form for patients with hospital acquired thrombosis should be completed and a root cause analysis investigation undertaken.

After completing the root cause analysis investigation, the identified learning points that will reduce the risk of future hospital acquired thrombosis should be disseminated by the service leads to clinical staff and relevant clinicians.

7. Unplanned Services

Assess all patients seen where a lower limb cast is applied or mobility is significantly reduced by injury/illness; for risk of VTE and bleeding use a standard risk assessment tool (Appendix 1) available on SystemOne

A VTE risk assessment must be undertaken prior to discharge and documented clearly in the notes.
Balance the person's individual risk of VTE against their risk of bleeding when deciding whether to offer pharmacological thromboprophylaxis to patients with lower limb cast.

If VTE prophylaxis is withheld for any reason (e.g. bleeding risk) this must be documented clearly in the patient's health records

For further information refer to Unplanned service SOPs

- SOP for the Assessment of VTE Risk for Patients Immobilised in Lower Leg Plaster Casts (Including the Commencement of Pharmacological VTE Prophylaxis (G-CS-105)

- SOP for the Assessment, Diagnosis and Treatment of Suspected Venous Thromboembolism (VTE) (G-CS-106)

8. Planning for discharge

- Offer patients and/or their families or carers verbal and written information (Appendix 4) on:
  - signs and symptoms of DVT and PE
  - the importance of seeking medical help and who to contact if DVT, PE or other adverse event suspected

- If discharged with VTE prophylaxis, also offer patients and/or their families or carers information on:
  - correct use and duration of VTE prophylaxis at home
  - importance of using VTE at home correctly and for recommended duration
  - signs and symptoms of adverse events related to VTE prophylaxis
  - who to contact if they have problems using VTE prophylaxis at home

- If discharged with anti-embolism stockings, ensure that the patient:
  - understands the benefits of wearing them
  - understands the need for daily hygiene removal
  - is able to remove and replace the stockings or has someone who can do this
  - knows what to look for, such as skin marking, blistering or discolouration, particularly over heels and bony prominences
  - knows who to contact if there is a problem

- If discharged with pharmacological or mechanical VTE prophylaxis ensure that:
- the patient is able to use it or has someone who can do this
- offer leaflet on Self-- Administration of Heparin (refer to G-CS-105)
- the patient's GP is notified

9. Procedure to be followed if Venous Thromboembolism is suspected

Consider the possibility of DVT & PE in an inpatient if typical symptoms and signs are present, especially if the person has risk factors such as previous venous thromboembolism and immobility

If Urgent Care refer to SOP G_CS_106

Typical signs and symptoms of DVT are:

- Pain and swelling in one leg, although both legs may be affected.
- Tenderness, changes to skin colour and temperature, and vein distension.

Typical signs and symptoms of PE are;

- dyspnoea,
- tachypnoea,
- pleuritic chest pain,
- features of deep vein thrombosis (DVT), including leg pain and swelling (usually unilateral), lower abdominal pain, redness, increased temperature, and venous distension.
- Other symptoms that may be present include: retrosternal chest pain (due to right ventricular ischaemia).Cough and haemoptysis. In severe cases, dizziness and/or syncope (due to right ventricular failure).

Be aware that PE may be completely asymptomatic and be discovered incidentally when assessing for another condition.

Carry out a physical examination and review the person's general medical history to exclude an alternative cause for the symptoms and signs.

If an inpatient already receiving thromboprophylaxis is suspected to have a DVT or PE they should be treated with therapeutic dose Pharmacological anticoagulation and have the appropriate radiological investigations (either a duplex Doppler scan of the lower limb or a CT pulmonary angiogram). The patient should be referred to acute care unless advanced care plan states that acute transfer or investigations are not appropriate Clinical judgement should be used to establish if the patient is suitable to remain in LCHS care or requires transfer to acute care for treatment.

If a DVT or PE is confirmed and remains in the community hospital ward the patient should be offered a choice of treatment: refer to the following documents for guidance:

The Assessment Diagnosis and Treatment of Suspected Venous Thromboembolism G-CS-SOP 106

NICE guidance:

https://www.nice.org.uk/guidance/ng158/resources/venous-thromboembolic-diseases-diagnosis-management-and-thrombophilia-testing-pdf-66141847001797

https://www.nice.org.uk/guidance/ng158/resources/visual-summary-pdf-8709091453

https://www.nice.org.uk/guidance/ng158/resources/visual-summary-pdf-8709091453

10. Monitoring Compliance

Completion of individual patient S1 clerking template is used as part of the audit tool to ensure audit, compliance and performance.

The LCHS Performance Team will report on incidents of hospital acquired VTEs. The Medicines Management team will report on hospital VTE assessments through the monthly Medicine Report which will be discussed at Drugs and Therapeutic Committee, individual relevant Quality Assurance Groups and Safeguarding and Patient Safety

11. References

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NICE Pathways Venous Thromboembolism Overview [online] https://pathways.nice.org.uk/pathways/venous-thromboembolism [Accessed 230.04.20.20]

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UKMi Medicines Q&A 326.1: What doses of thromboprophylaxis are appropriate for adult patients at extremes of body weight? April 2010. Available from www.nelm.nhs.uk, date accessed: 21st February, 2011

Appendix 1 Anti-embolism stockings (AES) COMPETENCY ASSESSMENT TOOL

Performance Standard
The registered/ unregistered healthcare professional will be able to demonstrate the knowledge and competence to support the safe application of AES for patients according to the care environment.

Action
The registered/ unregistered healthcare professional to discuss with the assessor (experienced registered professional who has previously completed these competencies) the procedure and implications for AES

Success Criteria
- The registered/ unregistered healthcare professional will identify the environment in which he/she will apply AES and explain the indications for this
- The registered unregistered healthcare professional will identify and discuss the procedure for highlighting the requirement and completion of appropriate documentation according to their individual care environment.

The following criteria should be completed according to appropriate care environment

Please tick: Environment in which application of anti- embolism stockings will take place

In patient setting / Unplanned care setting

Criteria	Comments / Actions	Achieved Date and Sign
For registered practitioners complete additional e-learning package and all competences below		
Completion of eLearning module ; VTE Prevention in Secondary care accessed through ESR Feedback and discuss with assessor		
For unregistered and registered practitioners complete all competences		

below and revisit as per training matrix		
Read the manufacture's guidance on applying AES, Discuss and ensure understanding of the written instruction with the assessor		
Visual instruction to be accessed through You tube Certified Nursing Assistant Skills- Applying Anti-Embolism Stockings published 13th Dec 2016 Watch , understand and feedback on the video and discuss any differences between the video and clinical practice in your area		
Recognise indication for AES		
Identify when AES is not appropriate/ should not take place		
Identify correct procedure for • Requirements prior to AES • Documentation i.e. risk assessment • Record keeping i.e. patient notes • Communication i.e. with patient and feedback to professional who had delegated task		
Identify when AES should discontinue		
Demonstrate to the assessor safe practice of applying AES, including correct measurement and choice of sizing		
Identify alternatives to AES		
Identify escalation procedure/ support		

Statement of Completion for the Anti-embolism Stockings (AES) Competence

Name of Healthcare professional :

Profession: Registration No (if applicable) :

Assignment Number *(payslip)*

Name of Sign off Assesor:

Date of completion: Time:

Location of assessment:

Decleration:
I have witnessed the above healthcare professional in practice and am signing to confirm they have shown appropriate knowledge, skill, clinical judgement, confidence and competence in the application of AES as described in the above competences

Signature: Designation: Date:

If you deem the healthcare profession does not meet the above competencies please detail below areas for development:

Once completed please send a copy to the training and development team lhnt.learnuinganddevelopementteam@nhs.net to log on to ESR. A copy can be shared with your line manager.

Appendix 2

RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM (VTE)

All patients should be risk assessed on admission to hospital. Patients should be reassessed within 24 hours of admission and whenever the clinical situation changes.

STEP ONE

Assess all patients admitted to hospital for level of mobility (tick one box). All surgical patients, and all medical patients with significantly reduced mobility, should be considered for further risk assessment.

STEP TWO

Review the patient-related factors shown on the assessment sheet against **thrombosis** risk, ticking each box that applies (more than one box can be ticked).

Any tick for thrombosis risk should prompt thromboprophylaxis according to NICE guidance.

The risk factors identified are not exhaustive. Clinicians may consider additional risks in individual patients and offer thromboprophylaxis as appropriate.

STEP THREE

Review the patient-related factors shown against **bleeding risk** and tick each box that applies (more than one box can be ticked).

Any tick should prompt clinical staff to consider if bleeding risk is sufficient to preclude pharmacological intervention.

Guidance on thromboprophylaxis is available at:

National Institute for Health and Clinical Excellence (2010) Venous thromboembolism: reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. NICE clinical guideline 92. London: National Institute for Health and Clinical Excellence.

http://www.nice.org.uk/guidance/CG92

This document has been authorised by the Department of Health
Gateway reference no: 10278

Department of Health

Mobility – all patients (tick one box)	**Tick**		**Tick**		**Tick**
Surgical patient		Medical patient expected to have ongoing reduced mobility relative to normal state		Medical patient NOT expected to have significantly reduced mobility relative to normal state	
Assess for thrombosis and bleeding risk below				**Risk assessment now complete**	

Thrombosis risk			
Patient related	**Tick**	**Admission related**	**Tick**
Active cancer or cancer treatment		Significantly reduced mobility for 3 days or more	
Age > 60		Hip or knee replacement	
Dehydration		Hip fracture	
Known thrombophilias		Total anaesthetic + surgical time > 90 minutes	
Obesity (BMI >30 kg/m^2)		Surgery involving pelvis or lower limb with a total anaesthetic + surgical time > 60 minutes	
One or more significant medical comorbidities (e.g. heart disease;metabolic,endocrine or respiratory pathologies;acute infectious diseases; inflammatory conditions)		Acute surgical admission with inflammatory or intra-abdominal condition	
Personal history or first-degree relative with a history of VTE		Critical care admission	
Use of hormone replacement therapy		Surgery with significant reduction in mobility	
Use of oestrogen-containing contraceptive therapy			
Varicose veins with phlebitis			
Pregnancy or < 6 weeks post partum (see NICE guidance for specific risk factors)			

Bleeding risk			
Patient related	**Tick**	**Admission related**	**Tick**
Active bleeding		Neurosurgery, spinal surgery or eye surgery	
Acquired bleeding disorders (such as acute liver failure)		Other procedure with high bleeding risk	
Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with INR >2)		Lumbar puncture/epidural/spinal anaesthesia expected within the next 12 hours	
Acute stroke		Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours	
Thrombocytopaenia (platelets< $75x10^9$/l)			
Uncontrolled systolic hypertension (230/120 mmHg or higher)			
Untreated inherited bleeding disorders (such as haemophilia and von Willebrand's disease)			

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Appendix 3

Low Molecular Weight Heparins: product and dosing guidance for thromboprophylaxis

Dose for adult medical/surgical patients

Dalteparin 2500unit and 5000unit injections: Please reserve for use in patients with eGFR <20 and/or haematology advice

Body Weight (kg)	Renal Function (*eGFR*)*	LMWH product and dose (subcutaneous)
<50	<20	Contact haematology
	≥20	Enoxaparin 20mg (2000 units) OD
50 – 100	<20	Dalteparin 2500 units OD
	20 - 29	Enoxaparin 20mg (2000 units) OD
	≥30	Enoxaparin 40mg (4000 units) OD
101 - 150	<20	Dalteparin 2500 units OD
	20 - 29	Contact haematology
	≥30	Enoxaparin 40mg (4000 units) BD
>150	<20	Dalteparin 2500 units OD
	20 - 29	Contact haematology
	≥30	Enoxaparin 60mg (6000 units) BD

*If there is any doubt about the accuracy of the eGFR measurement (e.g. very small or large patients) then the creatinine clearance should be calculated using the Cockcroft-Gault formula

Renal Impairment

For patients with eGFR<20, anti-Xa level at 3 hrs post dose if continuing for more than 3 days. Contact haematology for interpretation. Ensure the request form for anti-Xa level specifies dalteparin.

Body weight <50kg or >150kg or patient at increased risk of bleeding

Anti-Xa level at 3 hrs post dose if continuing for more than 3 days. Contact haematology for interpretation. Ensure the request form for anti-Xa level specifies dalteparin or enoxaparin.

Dose for obstetric patients

Body Weight (kg)	Enoxaparin Dose (subcutaneous) (Creatinine Clearance* ≥30)
<50	20mg (2000 units) OD
50 - 90	40mg (4000 units) OD
91 - 130	60mg (6000 units) OD†
131 - 170	80mg (8000 units) OD†
>170	0.6mg/kg OD†

For patients with a creatinine clearance <30, contact haematology or obstetrics for further advice.
† May be given in two divided doses

*Creatinine clearance should be calculated using the Cockcroft-Gault formula

- For full prescribing advice on Dalteparin Sodium (Fragmin®) and Enoxaparin (Clexane®) refer to the Summary of Product Characteristic (SPC) available online at https://www.medicines.org.uk/emc/
- Enoxaparin for thromboprophylaxis in pregnancy: RCOG guidelines. April 2015

October 2018 v 1.1

Appendix 4

Information for patients

Preventing hospital-acquired blood clots
This leaflet explains more about blood clots, which can form after illness and surgery, especially when you are moving around less than usual.

What are hospital-acquired blood clots?

A hospital acquired-blood clot can develop in patients when they are in hospital, and up to 90 days after a stay in hospital.

There are two kinds of clot

1. Deep vein thrombosis (DVT): This is a blood clot (also known as a thrombosis) that forms in a deep vein, most commonly in your leg or pelvis. It may cause no symptoms at all or cause swelling, redness/discolouration, warmth and pain.

2. Pulmonary embolism (PE): If a clot becomes dislodged and passes through your blood vessels it can reach your lungs. This is called a PE. Symptoms include coughing (with blood stained phlegm), chest pain, breathlessness or collapse.

Health professionals use the term venous thromboembolism (VTE), to cover both DVT and PE.

If you develop any of these symptoms either in hospital or after you go home, please get medical advice immediately.

Are blood clots common?

Blood clots occur in the general population. You may have heard about DVT occurring in people flying for long periods, The Government recognises that hospital-acquired blood clots are an important problem and has asked hospital doctors, nurses and pharmacists to assess each patient's risk. If you are at risk, your doctor or nurse will talk with you about what will be done to offer you protection against clots.

Who is at risk?

Any unwell adult admitted to hospital is at risk – that is most adults. Other factors that put people at greater risk include:

- if you or a close relative (parent, brother, sister or child) has had a previous clot
- cancer and it's treatment
- certain 'sticky blood' conditions such as antiphospholipid syndrome or Factor V Leiden
- being overweight
- being immobile (not walking or moving around)
- use of oestrogen-containing contraceptives and hormone replacement therapy (HRT)
- having an operation
- significant injury or trauma

- pregnancy (during and after)
- age over 60 years
- dehydration

What can I do to reduce my risk of developing a clot?

- Drink plenty of water and other non-alcoholic drinks to keep hydrated (unless advised otherwise).
- Move around as much as you can
- Do the following exercises two or three times an hour (in bed or in your chair)
- Keeping your legs and knees straight, quickly bend and straighten your ankles 10 times to stretch your calf muscles.

What will the hospital staff do to reduce my risk?

Stockings: In hospital, you might be measured and fitted with elastic anti-embolism stockings for your legs.

- The stockings should not have wrinkles in them, these can dig into the skin and cause tissue damage.
- The stockings should not be turned or rolled down as this can cause circulation problems.
- The stockings should be worn day and night until you are told you do not need them anymore.
- They should be removed at least once a day to wash and dry your legs and to check for blisters or red marks, especially on the heels, shins and toes.
- Report any pain, numbness or tingling in your feet or legs to a member of staff
- Staff will help you put them on if needed. You will be given the information leaflet from the stockings for more information.

Blood thinners: Most patients at risk will be prescribed a small dose of an anticoagulant (blood thinning) medicine in the form of a tablet or injection. These medicines reduce the chance of having a blood clot by thinning your blood slightly. If you need to take these medicines when you leave hospital, you will be told how long to take them for. The anticoagulant most often used is a type of heparin, which is given by injection into the fatty layer just under the skin of the stomach, thigh or upper arm.

All blood thinners can increase your risk of bleeding. If you develop bleeding or unexplained bruising while you are taking a blood thinner you should report it immediately to a member of staff.

Heparin injections are made from pork derived products. If you have concerns about this please speak to the doctor, nurse or pharmacist to discuss alternatives.

What happens when I go home?

Until you return to your usual level of activity, you may need to wear anti-embolism stockings after you go home. Your nurse will tell you how to put them on and what you should check your skin for. If you need to continue anticoagulation injections at home, your nursing team will teach you how to do this. If you have any concerns make sure you speak to a nurse before you leave.

If you develop any signs or symptoms of a clot at home, then seek medical advice immediately, either from your general practitioner (GP) or the emergency department in your nearest hospital. <u>If you have chest pain or difficulty breathing call 999.</u>

Useful sources of information

- Please ask your doctor or nurse for more information.
- **NHS choices** website has information on blood clots. Visit www.nhs.uk
- **NHS 111** is a free-to-call single non-emergency number medical helpline operating in England and Scotland.
- **Lifeblood: The thrombosis charity** also has information. www.thrombosis-charity.org.uk

Equality Analysis

Equality Impact Analysis Screening Form

Title of activity	Prevention of VTE		
Date form completed	07.05.2020	Name of lead for this activity	Helen Oliver
Analysis undertaken by:			
Name(s)	Job role	Department	
Helen Oliver	MM Skills Facilitator	Medicine Management	
What is the aim or objective of this activity?	To ensure staff have an active awareness of the risks of venous thromboembolism (VTE) and take appropriate action to assess the risk for all patients under their care and initiate preventative measures to reduce that risk in proportion to the risk identified		
Who will this activity impact on? *E.g. staff, patients, carers, visitors etc.*	All patients being cared for by LCHS staff		

Potential impacts on different equality groups:

Equality Group	Potential for **positive** impact	**Neutral** Impact	Potential for **negative** impact	Please provide details of how you believe there is a potential positive, negative or neutral impact (and what evidence you have gathered)
Age	☐	☐	☐	No differences within age groups
Disability	☐	☐	☐	No differences with disability groups
Gender reassignment	☐	☐	☐	No differences
Marriage & civil partnerships	☐	☐	☐	No differences
Pregnancy & maternity	☐	☐	☐	No differences
Race	☐	☐	☐	No differences
Religion or belief	☐	☐	☐	No differences

Sex	☐	☐	☐	No differences
Sexual Orientation	☐	☐	☐	No differences
Additional Impacts ***(what other groups might this activity impact on? Carers, homeless, travelling communities etc.)***	☐	☐	☐	This document has considered all groups being cared for by LCHS staff

If you have ticked one of the above equality groups please complete the following:

Level of impact	Yes	No
Could this impact be considered direct or indirect discrimination?	☐	☒
If yes, how will you address this?		

	High	Medium	Low
What level do you consider the potential negative impact would be?	☐	☐	☒

If the negative impact is high, a full equality impact analysis will be required.

Action Plan

How could you minimise or remove any negative impacts identified, even if this is rated low?
How will you monitor this impact or planned actions?
Training can be monitored through ESR
Future review date:

NHSLA Monitoring Template

This template should be used to demonstrate compliance with NHSLA requirements for the policy where applicable and/or how compliance with the policy will be monitored.

Minimum requirement to be monitored	Process for monitoring e.g. audit	Responsible individuals/group /committee	Frequency of monitoring /audit	Responsible individuals / group / committee (multidisciplinary) for review of results	Responsible individuals / group / committee for development of action plan	Responsible individuals / group / committee for monitoring of action plan
The organisation has an approved documented process for managing the risks associated with the prevention and management of venous thromboembolism that is implemented and monitored.	Audit of VTE risk assessments undertaken Audit of interventions prescribed VTE incident reporting	Ward managers and hospital matrons	Monthly	Medicines Management Team	Matron	Medicines Management Team