HOSPITAL POLICY - Policy for the prevention of venous thromboembolism (VTE) in inpatients

Reference Number: UHB 106 **Version Number:** 3	**Date of Next Review:** 13 Apr 2024 **Previous Trust/LHB Reference Number:** UHB 362

Policy for the prevention of venous thromboembolism (VTE) in adult and teenage inpatients

Policy Statement

To ensure the Health Board delivers its aims, objectives, responsibilities and legal requirements transparently and consistently, it is the policy of Cardiff and Vale University Health Board (UHB) to follow the guidance as set out in the NICE NG89 and those measures required by the Welsh Assembly Government (WAG):

- All adult and teenage patients admitted to hospital are assessed, using an appropriate UHB Risk Assessment tool within 14 hours of admission, and appropriate preventative measures are instituted as a result.
- All episodes of hospital associated VTE will be reviewed to establish if potentially preventable
- RCA of potentially preventable cases will be undertaken by each clinical board and actions and learning outcomes reported to WAG on a quarterly basis
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Policy Commitment

- To maintain adequate processes in all clinical boards for the assessment of the VTE risk for adults and teenage children during an admission to hospital;
- To ensure that all staff and patients receive adequate information and education regarding the development of VTE whilst in hospital and the processes required to reduce its risk, and:

- To ensure that each Clinical Board has a designated medical and nursing lead for thrombosis and anticoagulation that develop and review processes within that board for minimising the risk of VTE whilst in hospital

Supporting Procedures and Written Control Documents

This Policy is to be used in conjunction with the supporting documents listed below: Patient Identification Policy

Anticoagulation Policy

Medicines Management Policy

Making Decisions on Individual Requests for Treatment Policy

Patient Handover Policy

Single Nurse Administration of Drugs in Hospital Policy Writing Prescriptions Policy

Equality Impact Assessment	An Equality Impact Assessment (EqIA) has been completed and this found there to be no impact.
Health Impact Assessment	A Health Impact Assessment is not required for this policy.
Policy Approved by	Quality, Safety and Environment Committee
Group with authority to approve procedures written to explain how this policy will be implemented	C & V UHB Clinical Medical and Nursing Lead for Thromboprophylaxis, Clinical Board Quality, Safety and Environment sub-Committees.
Accountable Executive or Clinical Board Director	Executive Medical Director

Disclaimer

If the review date of this document has passed please ensure that the version you are using is the most up to date either by contacting the document author or the Governance Directorate.

Coronavirus Disease 2019 (COVID-19) Statement

Any patient admitted with confirmed or suspected infection with SARS-CoV-2 should receive pharmacological thromboprophylaxis if there is no contraindication. These patients are at high risk of developing hospital acquired thrombosis, particularly if immobilised and admitted to critical care. Please

follow the CAV UHB COVID 19 Thromboprophylaxis pathway 'Reducing the Risk of Venous Thromboembolism in Patients Admitted with Suspected or Confirmed COVID-19'

Thromboprophylaxis should be reviewed regularly and adjusted according to the clinical situation, risk of bleeding vs risk of thrombosis.

Scope

1.1 Groups that will be covered:

1. Adults (16 years and older) who are admitted to hospital for 24 hours or more (including through surgical day units).
2. Pregnant women admitted to hospital - they have been identified as a group requiring special consideration.
3. Children aged 13 or over or who are post-pubertal, who require an inpatient admission for a surgical procedure
4. Any additional groups identified who are at risk of thrombosis due to their personal or family history, or the indication for attending hospital e.g. adult patients requiring immobilisation in a lower limb cast.

1.2 Groups that will not be covered:

1. People younger than 16 (except as 1.1 c)
2. Elderly or immobile people cared for at home, or in external residential accommodation, unless admitted to hospital
3. Patients admitted to hospital with a diagnosis of, or suspected diagnosis of, deep vein thrombosis or pulmonary embolus that will require specific assessment and treatment.

Summary of reviews/ amendments			
Version Number	**Date Review Approved**	**Date Published**	**Summary of Amendments**
1	21 February 2012	19 March 2012	Policy supersedes policy of former Trust. • Updated Risk Assessment tools under Clinical Policies and Procedures. • Update to Audit Proforma • Update since NICE initial publication
2	23 February 2016	26 Apr 2016	• Update on current Welsh Government stance on thromboprophylaxis • Updated risk assessment tools • Use of direct oral anti-coagulants (DOACS)
3	20 October 2020	15 Apr 2021	• Update on NICE NG89 • Updated risk assessment tools

1. INTRODUCTION AND BACKGROUND:

Venous thromboembolism (VTE) accounts for approximately 10% of all hospital deaths.

Approximately one third of episodes of VTE occur in association with a hospital admission and thus hospital acquired thrombosis contributes significantly to the total cost of managing VTE in the UK, which is estimated to be around £640 million per year. Around 10% of patients treated for deep vein thrombosis (DVT) subsequently develop debilitating venous leg ulceration, treatment of which is estimated to cost £400 million in the UK.

The aetiology of VTE is multifactorial and risk factors associated with its development are clearly identified. Hospitalised patients with stroke, myocardial infarction, severe heart failure, chronic respiratory disease, active cancer or those receiving cancer therapy are at greater risk of developing VTE which, for example; may occur in up to 50% of patients with stroke/MI. Patients with a personal or family history of venous thrombosis are also at risk of developing VTE whilst in hospital.

The risk of VTE increases with age, particularly in patients over 50 years. Other

‘’acquired’’ risk factors include:

- Surgery, especially orthopaedic, neurosurgery or pelvic surgery for cancer
- Pregnancy
- Obesity, BMI >30kg /m2
- Oestrogen-containing drugs, such as the combined oral contraceptive pill and hormone replacement therapy
- Kidney disease, such as nephrotic syndrome and myeloproliferative disorders.

The most serious complication of VTE is pulmonary embolism (PE) which, untreated has a mortality rate of 30%. However, with appropriate treatment this figure is reduced to 2% (House of Commons Committee, 2005). Unfortunately, the diagnosis of VTE is often delayed until the development of a sometimes fatal PE.

Without prophylaxis, 45-51% of orthopaedic patients develop DVT (of which 50% may be symptomatic) and it is estimated that in Europe around 5,000

patients are likely to die per year of VTE following hip or knee replacement when prophylactic treatments are not prescribed.

About a third of all surgical patients developed VTE (diagnosed venographically) before the introduction of prophylactic treatments. The routine implementation of venous thromboprophylaxis guidelines (issued by the Royal College of Obstetricians and Gynaecologists) for women undergoing caesarean section has seen a substantial fall in morbidly and mortality from VTE (House of Commons Health Committee, 2005). However, VTE is still a leading cause of maternal morbidity and mortality and ongoing assessment of a woman's risk of VTE throughout pregnancy remains essential.

It is clearly established that hospitalisation is associated with an increased risk of VTE, with an incidence 135 times greater in hospitalised patients than in the community. It is estimated that 70-80% of hospitalacquired VTEs occur in 'medical' patients (House of Commons Health Committee, 2005).

National Clinical Guidance

Clinical guidelines for thromboprophylaxis have been published by some specialties in the UK and also in other countries. These include the guidelines published by the Royal College of Obstetricians and Gynaecology 2015 (CG37a), the 9th American College of Chest Physicians (ACCP) and the Scottish Intercollegiate Network (SIGN) as well as NICE Guidelines CG92. NICE Guideline (NG) 89 replaced NICE Clinical Guideline 92 in August 2019.

This guideline mandates that ALL patients admitted into hospital must be fully assessed for their risk of venous thromboembolism within 14 hours of admission. The guidance also recommends that patients are re-assessed for their risk of VTE at the point of consultant review and if their clinical condition changes.

Welsh Government Stance

In Wales in May 2012, the Welsh Assembly Government Health and Social Care committee held a one-day enquiry into in to Venous Thrombo-embolism Prevention in Welsh hospitals. The All Wales Thrombosis Group manages the implementation of the NICE NG89 clinical guidance, the Welsh Assembly Government (WAG) recommendations and audit of Hospital Acquired Thrombosis (HAT) through a means of continuous Root Cause Analysis (RCA). The group reports directly to WAG. Five recommendations were made following the one-day enquiry in May 2012:

Recommendation 1: Compliance with relevant NICE guidance.

Recommendation 2: Clinicians are mandated to carry out VTE risk assessment for all hospitalised patients and prescribe thromboprophylaxis as appropriate.

Recommendation 3: Health boards will develop a standardised method of demonstrating their HAT rate.

Recommendation 4: An RCA will be undertaken for all patients who develop a VTE during their hospital stay or within 90 days following discharge to establish if the event is hospital acquired.

Recommendation 5: Welsh Government and health boards work together to raise awareness amongst patients and clinicians of the risks of developing HAT.

Cardiff and Vale University Health Board is committed to thrombosis prevention and has promoted the use of specialty-specific risk assessment, so that clinicians are best able to balance the risks and benefits of thromboprophylaxis. Both clinicians and the general public require ongoing education to increase awareness of the problem and each Clinical Board has nominated thrombosis and anticoagulation leads to review the safety and compliance with relevant protocols. They are supported in these roles by the Lead Clinical Medical and Nursing Lead for Thromboprophylaxis.

2. CLINICAL PROCEDURES AND METHODS OF PROPHYLAXIS AGAINST VENOUS

THROMBOEMBOLISM

Each patient admitted to the hospital should have a risk assessment completed and appropriate measures prescribed and documented in their notes.

(Some specialities utilise a risk assessment tool adopted for their area – please review with individual clinical board).

Low Molecular Weight Heparins (LMWH) has been shown to be effective in many clinical settings e.g. general surgery, obstetrics, orthopaedic surgery and general medicine in reducing the incidence of VTE. For example, the use of thromboprophylaxis in hip replacement surgery can reduce venographically confirmed DVT from approximately 50% to 10-15% (House of Commons Health Committee, 2005).

The introduction of direct oral anti-coagulant (DOACs) has also been found to reduce the risk of VTE in Hip/Knee replacement surgery (NICE TA 245).These are examples of preferred interventions at Cardiff and Vale University Health Board

2.1 PHARMACOLOGICAL PROPHYLAXIS

a. Heparins

Lower Molecular Weight Heparin: Enoxaparin: is the preferred low molecular weight heparin (LMWH) for indications for which it is licensed.

Contradictions for use of prophylactic heparins

Active bleeding, hypersensitivity to heparin, coagulopathy, acute renal failure, chronic renal disease (eGFR <30ml/min), endocarditis, history of heparin induced thrombocytopenia (HIT), lumbar puncture or neuroaxial anaesthesia within 12hrs, recent intraocular or intracranial surgery.

Use with caution in uncontrolled hypertension.

The use of LMWH should be re-assessed where there is chronic renal disease (eGfr <30ml/min) or evidence of acute renal failure. In these circumstances consider the use of subcutaneous unfractionated heparin 5000u bd.

This list is not exhaustive and a speciality specific risk assessment should take place for **each** patient.

b. DOACs (Direct Oral Anti-Coagulants)

Apixaban is a recommended option for the prevention of VTE in adults after elective hip or knee replacement surgery (NICE TA 245)

- The recommended dosage of apixaban is 2.5mg orally twice daily.

The initial dose should be taken 12-24 hrs after surgery. The duration of treatment depends on the individual risk of the patient for VTE which is determined by the type of orthopaedic surgery.

- Recommended treatment durations are 32–38 days for patients having hip replacement surgery and 10–14 days for patient having knee replacement surgery

Rivaroxaban is also recommended as an option for the prevention of VTE in adults after elective hip or knee replacement surgery (NICE TA 170) as is **Dabigatran (**NICE TA 157**)**

(N.B – Apixaban is the current DOAC of choice used within the Orthopaedic Directorate at Cardiff and Vale UHB)

Aspirin is NICE NG89 approved for use as thromboprophylaxis in patients who have had a total hip replacement or total knee replacement. However it

does not have a UK marketing authorisation for use as thromboprophylaxis medication and is not currently ratified for use in Cardiff & Vale UHB

2.2. MECHANICAL METHODS OF PROPHYLAXIS

These are examples of preferred interventions within the UHB.

2.2.1 Anti-embolism Stockings (AES)

Anti-Embolism Stockings (AES) are an adjunct or alternative to pharmacological prophylaxis where there is an increased risk from heparin use due to patient or procedure related factors. AES's may be used with pharmacological prophylaxis when risk of VTE is high. There is an All-Wales guideline and local UHB guidance for the use of AES's.

N.B.

Unless contra-indicated surgical patients should receive pharmacological and mechanical thromboprophylaxis

- **In medical patients mechanical methods should only be considered if pharmacological thromboprophylaxis is contraindicated.**
- **Cautions as described below should be considered with all patients before prescribing AES.**

Cautions for use of AES

Peripheral vascular disease, longstanding diabetes, ulcers, trauma, infection, recent skin grafts, massive oedema, pulmonary oedema, present or previous pressure damage to heels, severe leg deformities. Pulse palpation and arterial Doppler assessment are not reliable assessments of skin perfusion and regular inspection if there is suspicion or risk of vascular compromise.

1. **Nurses** need to be aware that in patients with skin, neurological or peripheral vascular diseases, AES may be contraindicated and that the incorrect fitting of AES can be detrimental to the patient. Therefore observation and continual re-assessment are required.
2. It is crucial that the prescriber and practitioner responsible for measuring and applying stockings are sure that the arterial, skin and neurological status of the patient is sufficient to allow safe compression.
3. **Nurses** should complete the AES sheet on all patients prescribed AES, (see appendix for example of sheet)

2. 2. 2 Other mechanical devices

Intermittent Pneumatic Compression (IPC) Devices/ Mechanical Foot Pumps

These are suitable alternatives to AES. **However,** they are not widely available in the UHB and should be used as part of a local specialty specific thromboprophylaxis protocol and ratified at the speciality Q & S Committee. The contraindications to their use are as for AES.

When prescribing mechanical thromboprophylaxis only one device is to be prescribed and fitted at a time- there is no evidence to support the use of more than one mechanical at the same time

3. PATIENT EDUCATION

Patients should be made aware of the increased risk of VTE associated with hospital admission. In specialties where extended thromboprophylaxis is required, involving the administration of subcutaneous low molecular weight heparin, the patient should be advised, in advance of the procedure that they will be trained to self-administer the medication at home.

The UHB has designed “in-house” patient information leaflets. These should be given to patients in the pre-operative assessment area and on admission to all adult wards. (See appendix for copy of Reducing the Risk Patient Leaflet) Plasma screens are used to increase patient awareness; thrombosis prevention campaign material is regularly updated and displayed.

4. PROCESS

1. On admission **all** adults over 16yrs and children >13yrs old /post puberty who are admitted to hospital will be assessed for their risk of VTE. The outcome of this assessment should be documented as appropriate for the particular clinical board.
2. Completion of the Venous Thromboembolism Risk Assessment Section on page 5 of the All Wales In-patient Medication Administration Chart is advised as a minimum standard. Each speciality will incorporate a risk assessment tool as appropriate to that area.

Risk Assessment Tools for the clinical boards are included in the appendices. Any modification by individual directorates should be approved at Clinical Board Level, with oversight by the Leads for Thromboprophylaxis and ratified by the Clinical Board Quality and Safety Committee

5. ROLES AND RESPONSIBILITIES

5.1 Executive …… …

It is the responsibility of the Executive Board Medical Director to guide the UHB on the content of this Policy and monitor compliance. It will receive reports regarding the development of hospital acquired thrombosis from all the clinical board leads to establish any UHB-wide trends that need addressing.

5.2 Clinical Board Directors

It is the responsibility of the Clinical Board Directors (or their equivalent) to ensure, where appropriate, that the Policy is implemented within clinical areas for which they hold responsibility.

5.3 Medical Staff

Ensuring quality and safety standards which are defined by the UHB are the responsibility of all medical staff. It is their responsibility to ensure that they are conversant with this policy and their role in minimising the risk of HAT.

5.4 Admitting Clinician

It is the responsibility of the admitting clinician to assess each patient using the risk assessment appropriate to the speciality and to document the outcome of that assessment in the medical notes. Adherence to the speciality-specific guidelines will enable the clinician to prescribe the correct thromboprophylaxis.

An explanation for any deviation from the recommendations should be documented in the notes.

5.5 Registered Nurses and Midwives

Registered nurses and midwives should ensure that patients in their care have been assessed for their risk of thrombosis within 24 hours of admission. Where thromboprophylaxis is prescribed (in the form of AES or LMWH) then, prior to administration, the nurse or midwife should check whether a risk assessment has been documented, and if not, bring this to the attention of a member of the medical team.

The prescriber and the registered nurse or midwife are responsible for the accurate administration of prescribed thromboprophylaxis

5.6 Pharmacists

Pharmacists for each speciality have a responsibility for ensuring that prescribing of pharmacological thromboprophylaxis is appropriate. Pharmacists are responsible for monitoring the documentation of administration of the prescribed thromboprophylaxis and should highlight the need for review / reassessment as the patient's clinical condition alters.

The pharmacist is responsible for liaising with the medical and nursing team to ensure appropriate, accurate and timely thromboprophylaxis is prescribed.

6. RESOURCES AND TRAINING

6.1 Printed risk assessment tools and patient information leaflets are available for each specialty. The cost for printing will be carried by individual Clinical Board.

6.2. Ongoing training of all Doctors and Nursing staff is essential to ensure success and to ensure evidence based practice. This incorporated into the Clinical Board Quality, Safety and Experience Meetings, Grand Rounds and Registered Nurses Educational Programmes and Induction Programmes.

6.3 This policy will be published on the Intranet, Clinical Portal and Internet

6.4 It is the responsibility of the Clinical Board Directors to ensure that members of the Clinical Boards and Directorates are conversant with the policy and implement the relevant risk assessments.

7. HOSPITAL ACQUIRED THROMBOSIS (HAT) REVIEW PROCESSES

The clinical notes of all patients who develop a VTE during their current inpatient admission (length of stay to be greater than 24 hours of being admitted) or having had a hospital inpatient admission (length of stay to be greater than 24 hours) in the health board within the previous 90 days following discharge will be reviewed to establish whether:

- A thromboprophylaxis risk assessment has been completed on admission as per health board policy
- Appropriate treatment has been offered.

Where the answer to either of these questions is 'No' a RCA will be undertaken to establish if the HAT was potentially preventable. The result of the RCA will be discussed at the clinical board Q & S meeting to improve

processes and ensure learning from adverse events takes place. The number of suspected HAT cases related to a hospital stay are collated by the Health Board monthly and RCA's and associated actions are reported to WAG on a quarterly basis

8. FURTHER INFORMATION AND REFERENCES

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