Policy Category	BC - Best Care		
Best Care Goals	☒ Safe ☐ Personal ☐ Connected ☐ Effective		
Applies To	National		
Version	**Approval Authority**	**Effective from**	**Review by date**
1	National Medical Director, WA	7/09/2021	7/09/2024

Contents

1. Rationale

The purpose of this Clinical Protocol is to provide a guiding framework for the treatment for Pulmonary Embolus for the Hospital at the Home Medical Practitioners and clinical staff.

2. Scope

The Clinical Protocol applies Nationally for HATH clients treated with anticoagulants for the management of Pulmonary Embolus.

3. Acceptance to HATH Criteria and Pathway

RED Unacceptable for community admission to HATH Refer to ED/Inpatient management. (May become suitable for HATH after inpatient stabilisation)	• Co-existing medical conditions requiring hospital admission • Known or suspected hypersensitivity to warfarin or LMWH/other (eg. clexane, fondaparinux) (unless under the governance of Haematology Consultant or thrombosis clinic) • Pregnancy < 22 wks (warfarin is teratogenic), unless under the governance of Haematology Consultant for high risk conditions e.g mechanical valve

ORANGE
Requires discussion with Medical Governance prior to acceptance
	• Over 13 years, suitable for adult dosing and under the care of a specialist team
	• Increased risk factors for bleeding- e.g recent surgery, falls, familial bleeding disorder, GI bleeds, epistaxis
	• Increased risk factors for clotting: mechanical valves (especially mitral), mitral valve disease, recent VTE, carotid artery disease, arterio-embolic disease whilst on anticoagulation.
	• Conditions which may increase the risk of bleeding:
	  • History of familial bleeding disorder
	  • Thrombocytopenia.
	  • Uncontrolled hypertension.
	• Increased risk of falls

GREEN Accepted for HATH protocol	• Confirmed diagnosis of pulmonary embolism via CTPA or V/Q scan. • Client's medical condition has been assessed as stable, has a clear diagnosis, management plan, prognosis and is at low risk of deterioration.

4. Pathology Work Up

Verify if any recent pathology has been ordered prior to requesting the below:

- Baseline blood tests:
  - Full blood picture (FBP) for baseline platelet counts
  - Urea & electrolytes to assess renal function
  - Coagulation profile (INR, APTT, fibrinogen)
  - Liver function tests
- **Day 5: Repeat FBP to assess platelet count for heparin induced thrombocytopenia.**
  - Refer to eTG anticoagulation guidelines for further guidance on heparin induced thrombocytopaenia

5. General Management

- Twice daily nursing assessment as per Pulmonary Embolism Clinical Pathway. Collaborate with medical governance doctor if any deterioration in client's condition.
- Access blood results from referral source
  - If transitioning to Warfarin: Obtain last INR and Warfarin dose from referral source.
  - Collaborate with medical governance doctor regarding any abnormal test results.
- If transitioning to Warfarin: Monitor INR daily (utilising Coagucheck) and liaise with medical governance doctor for dosing of warfarin (*If INR reading >3.5, formal blood test is required for confirmation).
- For management of bleeding and/or high INR in a patient taking warfarin refer to Appendix A.
- Check renal function, calculate CG and check LMWH orders with Medical Governance
- Administer LMWH as per medical authority.

6. Medical Management / Treatment Plan

6.1. Warfarin

- LMWH should be continued until INR is within therapeutic range for 24-48 hours (can be ceased on 2nd day if INR in therapeutic range or if local medical governance requests cessation).
- Advise client regarding warfarin use, including its potential complications and interactions with diet and alcohol as per *Living with Warfarin* booklet.
- Warfarin takes a number of days to achieve therapeutic anticoagulation and causes an initial increase in prothrombotic potential. Consequently, when immediate anticoagulation is required (eg treatment of acute venous thromboembolism) warfarin must be started with concurrent parenteral anticoagulant therapy. When immediate anticoagulation is not required (eg stroke prevention for patients with chronic atrial fibrillation), warfarin can be started without concurrent parenteral therapy.
- Warfarin can be used in patients with severe kidney disease. Its use is limited by its narrow therapeutic index, interactions with other drugs and food, and the necessity to perform regular blood tests to monitor anticoagulation.

6.2. NOAC/DOAC

- DOACs achieve maximum anticoagulant effect within 3 hours of the first dose so there is usually no requirement for postprocedural bridging anticoagulation.

Recommended warfarin nomogram

Day	INR	Suggested Dose
1	1.0 – 1.4	5mg
2 and 3	Below 1.8 Above or equal 1.8	5mg 1mg
4 and 5	Below 1.5 1.5 – 1.9 2.0 – 2.5 2.6 – 3.5 3.5 – 4.5 Above 4.5	7mg 5mg 4mg 3mg 2mg (formal INR required) 0mg (formal INR required)

Recommended enoxaparin dose

Renal function	Treatment dose
Normal renal function CrCl > 30mL/min	• 1.5 mg/kg SC daily* or • 1 mg/kg SC BD**
Severe renal impairment CrCl < 30mL/min	• 1 mg/kg SC daily
* If dose required is greater than 150mg, dose must be given as twice daily dose. **Twice-daily dosing of enoxaparin is preferred for patients at high risk of bleeding, or of thrombosis, such as patients who are older, obese or have a malignancy.	

7. Monitoring

- **Day 5: Repeat FBP to assess platelet count for heparin induced thrombocytopenia.**
- Anticoagulation dosing as per pathway. Daily liaison with Medical Governance for dosing on POC

8. Medical Governance

- The client has access to medical governance support for 24 hours per day, 7 days per week.
- Primary medical governance can be by referring medical specialists, credentialed referring GPs or by Silver Chain medical staff.
- When governance is retained by a Silver Chain medical officer the client will have a medical review within 48 hours of admission and the medical officer will determine when the scheduled follow up and discharge will occur.
- Where the primary medical governor is unavailable the Silver Chain medical officer can provide the medical governance.
- Care delivery is planned and provided in consultation with the client, medical officer/specialist holding medical governance and nursing staff.
- In the instance when a client's condition deteriorates the Silver Chain medical officer or nursing staff will confer with an emergency department medical officer.
- A summary of the episode of care is sent to the referrer or the client's GP at discharge.

9. Discharge Planning

- Ensure the client has an appointment arranged with own General Practitioner (GP) prior to discharge to ensure continuity of care.
- Fax client discharge summary to GP.
- Ensure discharge summary highlights any clinical risks that have been identified and require handover

10. Supporting Documents

Silver Chain Group documents that directly relate to and inform this Clinical Protocol are available with this document in the Policy Document Management System (PDMS). Other documents that directly relate to and inform this Clinical Protocol are as follows:

- WA TAG Information for Patients. Living with Warfarin. Department of Health 2016. http://www.watag.org.au/wamsg/docs/Living_with_Warfarin.pdf
- Therapeutic Guidelines. eTGcomplete: Cardiovascular Anticoagulant Therapy (eTG March 2021 edition) https://tgldcdp-tg-org-au.silverchain.idm.oclc.org/viewTopic?topicfile=anticoagulant-therapy

11. Document Details

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Functional Area	Acute
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Silver Chain Group's policies align with relevant legislation and standards and are based on providing a fair, inclusive and safe working environment free from bullying and discrimination and one that enables equal opportunity for all Silver Chain staff. Our policies embody our values of Care, Community, Integrity and Excellence.

Appendix A: Management of Bleeding and/or High INR (Over-anticoagulation)

Principles

- INR > 3.5 on Point of Care (POC) machine e.g. Coagulochek mandates laboratory specimen to be taken.
- Laboratory specimen is considered as 'gold standard' and should be utilised in preference to POC machine.

High Bleeding Risk

- Recent major bleed (within 4 weeks)
- Major surgery (within 2 weeks)
- Thrombocytopaenia (platelet count < 50 x 10^9/L)
- Known liver disease
- Concurrent antiplatelet therapy

Management of patients on warfarin therapy with bleeding*

Clinical setting	Recommendation
INR ≥ 1.5 with life threatening bleeding	Cease warfarin and transfer immediately to hospital
INR ≥ 2.0 with clinically significant bleeding	Cease warfarin and transfer immediately to hospital
Any INR with minor bleeding	Omit warfarin, repeat INR following day and adjust warfarin dose to maintain INR in the target therapeutic range **If bleeding risk is high or INR > 4.5 refer to hospital for administration of vitamin K**

*indication for warfarin therapy should be reviewed; if clinically appropriate, consider permanent cessation.