Thames Valley
Family Health Team

# Medical Directive

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| **Warfarin Dosage Adjustment and INR Testing for Adults Treated with Warfarin** | **Assigned Number: 020** |
| **Activation Date: July 1, 2011** | **Review due by: December 2026** |

**Approval Signature & Date**

Medical Director: _____ Date Reviewed: April 15, 2025

Clinical Services Director: _____ Date Reviewed: April 15, 2025

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| **Order and/or Delegated Procedure:** | **Appendix Attached:** ☐ **Yes** ☒ **No** |

Adjustment of Warfarin dosage by phone or in person. Release of requisition for INR to monitor patient's anticoagulation status.

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| **Recipient Patients:** | **Appendix Attached:** ☐ **Yes** ☒ **No** |

All active patients (attached or unattached) served by Thames Valley Family Health Team affiliated physicians and nurse practitioners, as identified on the Authorizer Approval Form.

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| **Authorized Implementers:** | **Appendix Attached:** ☐ **Yes** ☒ **No** |

Thames Valley Family Health Team Registered Pharmacists (RPh), Registered Nurses/Registered Practical Nurses (RN/RPN)*

The implementer must complete educational requirements for this medical directive, including review of the education package and medical directive and successful completion of any quizzes. If additional orientation or shadowing is needed, the implementer must make arrangements for this with their clinical supervisor. Once all of the above has been completed, they are required to sign the Implementer Performance Readiness Form electronically, via Citation Canada, indicating they have the knowledge, skill and judgment to safely enact the medical directive.

| **Indications:** | **Appendix Attached:** ☐ **Yes** ☒ **No** |
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1. To monitor INRs when **INRs < 4.6** and adjust anticoagulation therapy and schedule follow-up monitoring in patients receiving long-term anticoagulation therapy for the following conditions, as documented in the patient's record, and may include:
    - Primary or secondary prevention of venous thromboembolism (e.g. pulmonary embolism or deep vein thrombosis, antiphospholipid antibody syndrome or thrombophilic conditions (i.e., factor V Leiden)
    - Prevention of systemic arterial embolism in patients with tissue or mechanical prosthetic heart valves
    - Valvular heart disease, cardiomyopathy, or atrial fibrillation
    - Prevention of acute myocardial infarction in patients with peripheral arterial disease
    - Prevention of stroke, recurrent infarction, and death in patients with myocardial infarction
    - Other conditions may be included as deemed necessary by the physician

2. Once a patient newly started on warfarin has had two consecutive INRs in the therapeutic range and has been on warfarin for at least eight (8) weeks and is deemed stable by the physician.

3. Verbal consent received from the patient or substitute decision maker for the implementer to order INR to monitor patient's anticoagulation and adjust anticoagulation therapy.

| **Contraindications:** | **Appendix Attached:** ☐ **Yes** ☒ **No** |
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1. Patient is actively bleeding or at high risk of bleeding
2. History of unpredictable or erratic INRs
3. Pregnancy or within 2 weeks of vaginal delivery
4. History of warfarin-induced skin necrosis
5. History of allergy to warfarin
6. Patient identified by the physician or nurse practitioner who would not be a candidate for management under this medical directive
7. Patients less than 21 years old

| **Consent:** | **Appendix Attached:** ☐ **Yes** ☒ **No** |
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Implementer obtains informed verbal consent from patient/substitute decision maker, per TVFHT: Informed Consent of Patient Healthcare Procedure, consent prior to the implementation of care.

| **Guidelines for Implementing the Order/ Procedure:** | **Appendix Attached:** ☒ **Yes** ☐ **No**<br>Appendix 1: Warfarin Dosage Adjustment Algorithm |
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1. Adjust the warfarin dosage based on the patient's individual INR results, following the guidelines in the attached Warfarin Dosage Adjustment Algorithm (Appendix 1), and provide a prescription or communicate with patient's pharmacy by phone as needed.

2. Release a requisition for INR when needed.

3. Interview patients in person or by phone to review factors that may impact INR results to include diet, newly started or stopped medications, potential drug-drug interactions, adherence, alcohol use, and other medical conditions.

4. Consult with patient's family physician or the on-call physician if a patient's INR > 4.5, or there is active bleeding at any INR range for further instructions to manage the patient.

5. Consult with the patient's physician, nurse practitioner, or on-call physician, if patients are experiencing adverse drug events (ADE) including signs and symptoms of bleeding, thrombosis or embolism, for further instructions to manage the patient.

| **Documentation and Communication:** | **Appendix Attached:** ☐ **Yes** ☒ **No**<br>Appendix 2: Recommended Format for a Prescription or Requisition Pursuant to a Directive |
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- The implementer will follow the documentation standards set by their governing college.
- In the patient's medical record, documentation must be completed on the TVFHT documentation template provided for this directive.
- Information regarding implementation of the directive and the patient's response will be documented in the patient's medical record, in accordance with standard documentation practice.
- Requisitions and prescriptions released must include the name and number of the directive, name of authorizer, name and signature of implementer.
- All INR results and dosing recommendations will be documented by the implementer per the authorizing physician or nurse practitioner's office policy.

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| **Review and Quality Monitoring Guidelines:** | **Appendix Attached:** ☐ **Yes** ☒ **No** |
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| The directive remains in effect until amended. It will be reviewed biennially or under the following circumstances:<br>1. The Medical Director identifies a need for change<br>2. Issues arise related to the directive's use--the team must promptly communicate concerns to their clinical supervisor, Medical Directives Coordinator, or Clinical Director<br>3. New information becomes available between scheduled reviews, particularly if it affects outcomes<br>The Medical Directives Committee will then review the concerns in consultation with at least one implementer and the Medical Director, as needed, before making necessary changes. | |
| **Approving Authorizer(s):** | **Appendix Attached:** ☐ **Yes** ☒ **No** |
| TVFHT Authorizer Approval Form signed in Citation Canada | |

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# Appendix 1

## Warfarin Dosage Adjustment Algorithm

These algorithms are meant to serve as a clinical guide, and deviation from them will occur based on clinical judgment, depending on various patient specific scenarios.

*****This directive only applies if the patient has no active bleeding****

| **Target INR 2.0 - 3.0** | **Dosage Adjustment** | **Next INR** | **Target INR 2.5 - 3.5** |
|---|---|---|---|
| **Measured INR** | | | **Measured INR** |
| < 1.5 | Consider extra dose, increase **weekly** dose by 10-20% | 4-7 days | < 2.0 |
| 1.5-1.9 | Increase **weekly** dose by 5-10%<br>OR<br>No dose change if previously stable INRs with one out-of-range INR | 7-14 days | 2.0-2.4 |
| 2.0-3.0 | No change | See follow-up algorithm (below) | 2.5-3.5 |
| 3.1-3.5 | Decrease **weekly** dose by 5-10%<br>OR<br>No dose change if previously stable INRs with one out-of-range INR | 7-14 days | 3.6-4.0 |
| 3.6-4.5 | Hold 1 dose and decrease **weekly** dose by 10-20% | 7-14 days | 4.1-4.5 |
| **The following INRs are out-of-scope for this directive. The content below are suggested approaches, however, physicians/nurse practitioners need to be notified and consulted.** | | | |
| > 4.5-9.0 | Hold 2 doses, decrease **weekly** dose by 20% | 3-5 Days | > 4.5-9.0 |
| > 9.0 | Hold all doses, Vitamin K 2.5 mg PO X 1 Consult physician as soon as possible | 24 hours, or According to physician direction | > 9.0 |

## Follow-Up Algorithm

| Number of consecutive INRs in range | Repeat INR |
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| 1 | 4-7 days |
| 2 | 14 days |
| 3 | 21 days |
| 4 | 28 days |

- If INR 2.0-2.1, or 2.8-3.0, consider repeating INR in 14 days regardless of number of consecutive in range INRs.

- For patients with more than 5 consecutive therapeutic INRs, the follow-up algorithm may be accelerated for a single out of range INR.

Adapted from*: RxFiles: Warfarin Tips & Dosing Nomograms and Evidence-Based Management of Anticoagulant Therapy. Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. Accessed December 7, 2024.*