



## Medical Directive

**Title:** Warfarin Dosage Adjustment  
and INR testing for Adults  
treated with Warfarin

**Assigned  
Number:** 020

**Activation Date:** July 1, 2011

**Review due  
by:** December 2025

### Approval Signature & Date

**Medical Director:** \_\_\_\_\_

**Date Reviewed:** January 12, 2023

**Clinical Services Director:** \_\_\_\_\_

**Date Reviewed:** January 12, 2023

#### Order and/or Delegated Procedure:

**Appendix Attached:** ☐ Yes ☒ No

**Title:**

Adjustment of Warfarin dosage by Registered Pharmacists, Registered Nurse/ Registered Practical Nurse by phone or in person. Ordering INR to monitor patient's anticoagulation status by Registered Pharmacists, Registered Nurse/ Registered Practical Nurse by phone or in person.

#### Recipient Patients:

**Appendix Attached:** ☒ Yes ☐ No

**Title:** [Appendix 2 - Authorizer Approval Form](#)

All active adult patients of Thames Valley Family Health Team physicians identified on the attached Authorizer Approval Form (Appendix 2), who require adjustment of Warfarin dosage or ordering of INR by Registered Pharmacists, Registered Nurse/ Registered Practical Nurse.

#### Authorized Implementers:

**Appendix Attached:** ☒ Yes ☐ No

**Title:** [Appendix 1 - Implementer Approval Form](#)

[Appendix 20 - Self-directed learning package](#)

[Appendix 8 - Implementer Performance Readiness Form](#)

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

\*The implementer must demonstrate competency in the area of anticoagulation through an orientation procedure as dictated by the Educator. See Self-Directed Learning Package (Appendix 20). The implementers and Educator must sign the Implementer Performance Readiness Form (Appendix 8) after successful completion of the orientation. Following review of this directive, the Implementer Approval Form (Appendix 1) must be signed by the implementer indicating acceptance of this medical directive.

<b>Indications:</b>	<b>Appendix Attached:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Title:</b>
<ul style="list-style-type: none"> <li>To monitor INRs when <b>INRs &lt; 4.6</b> 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:               <ol style="list-style-type: none"> <li>1. 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))</li> <li>2. Prevention of systemic arterial embolism in patients with tissue or mechanical prosthetic heart valves</li> <li>3. Valvular heart disease, cardiomyopathy, or atrial fibrillation</li> <li>4. Prevention of acute myocardial infarction in patients with peripheral arterial disease</li> <li>5. Prevention of stroke, recurrent infarction, and death in patients with myocardial infarction</li> <li>6. Other conditions may be included as deemed necessary by the physician</li> </ol> </li> <li>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.</li> <li>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</li> </ul>	
<b>Contraindications:</b> <ol style="list-style-type: none"> <li>1. No verbal consent from patient or substitute decision maker for implementer to implement this medical directive</li> <li>2. Patients actively bleeding or at high risk of bleeding</li> <li>3. History of unpredictable or erratic INRs</li> <li>4. Pregnancy, and within 2 weeks of vaginal delivery</li> <li>5. History of warfarin-induced skin necrosis</li> <li>6. History of allergy to warfarin</li> <li>7. Patient identified by the physician who would not be a candidate for management under this medical directive</li> <li>8. Patients less than 21 years old</li> </ol>	
<b>Consent:</b>	<b>Appendix Attached:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Title:</b>
<ol style="list-style-type: none"> <li>1. Patients of Thames Valley Family Health Team family physicians</li> <li>2. Implementer obtains verbal patient or substitute decision maker consent prior to the implementation of care.</li> </ol>	

<b>Guidelines for Implementing the Order/ Procedure:</b>	<b>Appendix Attached:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <b>Title:</b> <a href="#">Appendix 19 - Warfarin Dosage Adjustment Algorithm</a>
<ol style="list-style-type: none"> <li>1. Implementer adjust warfarin dosage according to individual patient's INR results based on the algorithm attached (Appendix 19).</li> <li>2. Implementer may order INR at the patient's choice of laboratory when needed.</li> <li>3. Implementer 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.</li> <li>4. Implementer will consult with the patient's family physician or the on-call physician if a patient's INR &gt; 4.5, or there is active bleeding at any INR range for further instructions to manage the patient.</li> <li>5. Implementer will consult with the patient's family physician or the on-call physician if patients are experiencing adverse drug events (ADE) to include signs and symptoms of bleeding, thrombosis or embolism, for further instructions to manage the patient.</li> <li>6. All INR results and dosing recommendations will be documented by the implementer as per the family physician's office policy.</li> <li>7. Implementer will phone new prescriptions to patient's pharmacy or will write a prescription as per usual standard with the family physician or on-call physician's name on the prescription.</li> </ol>	
<b>Documentation and Communication:</b>	<b>Appendix Attached:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Title:</b>
<ol style="list-style-type: none"> <li>1. Documentation in the patient's medical record needs to include: name and number of the directive, name of the implementer (including credential), and name of the physician/authorizer responsible for the directive and patient.</li> <li>2. Information regarding implementation of the procedure and the patient's response should be documented in accordance with standard documentation practice.</li> <li>3. Standard documentation is recommended for prescriptions, requisitions, and requests for consultation.*</li> </ol> <p><i>*Potter, P.A. &amp; Perry, A.G. (2006). Fundamentals of Nursing. St. Louis: Mosby.  College of Nurses of Ontario 2008 Documentation Standards Practice Guideline.</i></p>	
<b>Review and Quality Monitoring Guidelines:</b>	<b>Appendix Attached:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Title:</b>
<ol style="list-style-type: none"> <li>1. The Directive remains in force until and unless amendment occurs. Review will occur biennially or if the following situations occur. In case the Medical Director identifies the need to change the Medical Directive, at least one TVFHT member of the implementing discipline will be consulted.</li> <li>2. At any such time that issues related to the use of this directive are identified, the team must act upon the concerns immediately by identifying these concerns to the Medical Director. The Medical Director will review these concerns and consult with at least one TVFHT member of the implementing discipline, before necessary changes are made.</li> <li>3. If new information becomes available between routine renewals, and particularly if this new information has implications for unexpected outcomes, the directive will be reviewed by the Medical Director and a minimum of one implementer.</li> </ol>	
<b>Approving Physician(s)/Authorizer(s):</b>	<b>Appendix Attached:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <b>Title:</b> <a href="#">Appendix 2 - Authorizer Approval Form</a>
TVFHT Family Physician Authorizer Approval Form (Appendix 2)	



## Appendix 19 - 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 <b>weekly</b> dose by 10-20%	4-7 days	< 2.0
1.5-1.9	Increase <b>weekly</b> dose by 5-10%*	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 <b>weekly</b> dose by 5-10%**	7-14 days	3.6-4.0
3.6-4.5	Hold 1 dose and decrease <b>weekly</b> dose by 10-20%	7-14 days	4.1-4.5
<b>The following INRs are out-of-scope for this directive. The content below are suggested approaches; however, physicians need to be notified and consulted.</b>			
> 4.5-9.0	Hold 2 doses, decrease <b>weekly</b> 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

\* If INR 1.8-1.9, consider no dosage change, and repeat INR in 7-14 days

\*\* If INR 3.1-3.2, consider no dose change, and repeat INR in 7-14 days

### Follow-Up Algorithm

Number of consecutive INRs in range	Repeat INR
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 October 9, 2022.



## Appendix 20 - Self-Directed Learning Package

Warfarin Nutrition Patient Education Handout

A Patient's Guide to Using Coumadin

A Systematic Approach to Managing Warfarin in Primary Care (link to article below):

<http://www.aafp.org/fpm/2005/0500/p77.html>

Delivery of Optimized Anticoagulant Therapy

Antiplatelet Medications, Clinical Practice Guidelines (Article)

[Evidence-Based Management of Anticoagulant Therapy. Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines.](#)