

Title: Warfarin dosage adjustmentNumber: 200801Activation Date: March 15th, 2008Review due by: March 1st, 2009

Sponsoring/Contact Person(s) Anne Mallin, R.Ph, BScPhm, PharmD (cand.), Pharmacist
 (name, position, contact particulars): Antony Gagnon, PharmD, CDE, CAE, Pharmacy Program Manager

Order and/or Delegated Procedure: <ol style="list-style-type: none"> 1. Pharmacists, nurse practitioners (NPs) or registered nurses (RNs) adjust warfarin dosage according to individual patient International Normalized Ratio (INR) laboratory results based on the algorithm attached. 2. Pharmacists, NPs or RNs may order pertinent laboratory tests at the patient's choice of laboratory, when needed, to include INR, CBC, hemoglobin and/or hematocrit, to monitor the patient's anticoagulation status. 3. Pharmacists, NPs or RNs 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. Pharmacists, NPs or RNs will consult with the patient's family physician or the on-call physician if patient's INR > 4.9, for further instructions to manage the patient 5. Pharmacists, NPs or RNs 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 6. All laboratory results and dosing recommendations will be documented by the Pharmacists, NPs or RNs as per the Family Physician's office policy 7. Laboratory results, dosing recommendations, and ongoing education will be communicated to the patient by either phone or in person by the pharmacist, NP or RN. 8. Pharmacists, NPs or RNs will phone new prescriptions to patient's pharmacies or will write a prescription (see recommended prescription format in attachment) under the patient's family physician or the on-call physician's name, as required based on the warfarin dosing algorithm attached 	Appendix Attached: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Title: 1. Warfarin dosing algorithm 2. Recommended format for a prescription or requisition completed pursuant to a directive.
Recipient Patients: <ol style="list-style-type: none"> 1. Patient who require warfarin therapy. The warfarin therapy will already been have initiated by the Family Physician. 	Appendix Attached: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Title:
Authorized Implementers: <ol style="list-style-type: none"> 1. Hamilton FHT Family physicians 2. Hamilton FHT Pharmacists * 3. Hamilton FHT Nurse Practitioners * 4. Hamilton FHT Registered Nurses * <p>. Who have successfully completed ($\geq 80\%$) the warfarin management qualification exam.</p>	Appendix Attached: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Title:

Indications:	Appendix Attached: <input type="checkbox"/> Yes <input type="checkbox"/> No	Title:
<ol style="list-style-type: none"> 1. Primary and secondary prevention of venous thromboembolism 2. Prevention of systemic arterial embolism in patients with tissue or mechanical prosthetic heart valves (high risk), valvular heart disease, cardiomyopathy, or atrial fibrillation 3. Prevention of recurrent systemic embolism in patients with atrial fibrillation 4. Prevention of acute myocardial infarction in patients with peripheral arterial disease 5. Prevention of stroke, recurrent infarction, and death in patients with myocardial infarction 6. Treatment of venous thrombosis, pulmonary embolism, antiphospholipid antibody syndrome or thrombophilic conditions (e.g., factor V Leiden) 		
<p>Contraindications:</p> <ol style="list-style-type: none"> 1. Patients actively bleeding or at high risk of bleeding (e.g., high-risk surgery) 2. Pregnancy, and within 2 weeks of vaginal delivery 3. History of warfarin-induced skin necrosis 4. History of allergy to warfarin 		
Consent:	Appendix Attached: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Title: Physician approval list
<ol style="list-style-type: none"> 1. Hamilton FHT Family Physicians Approval List / Signatures attached 		
Guidelines for Implementing the Order / Procedure:	Appendix Attached: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Title:
<ol style="list-style-type: none"> 1. Self-directed learning package and Medical Directive Order Sheet attached 		
Documentation and Communication:	Appendix Attached: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Title:
<ol style="list-style-type: none"> 1. Documentation of warfarin dosage adjustments in patient's electronic or paper medical record 2. Communication with patient to include education on warfarin 3. Oral anticoagulation checklist attached 		
Review and Quality Monitoring Guidelines:	Appendix Attached: <input type="checkbox"/> Yes <input type="checkbox"/> No	Title:
<ol style="list-style-type: none"> 1. To measure the quality of warfarin management, once annually calculate the percentage of patients within the target range (e.g., the number of INRs within the target range for all patients divided by the total number of INRs during the selected time interval). 2. To measure adverse event rates, once annually, calculate the number of episodes of life-threatening (leading to cardiac arrest, surgical/angiographic intervention, or irreversible sequelae), major hemorrhage (requiring treatment, medical intervention, or at least 2 units of blood), minor hemorrhage (reported but not requiring additional testing, referral, or office visits) or thromboembolism attributable to warfarin therapy. 3. Self-directed learning package provided to all authorized implementers (pharmacists, NPs, and RNs). 4. All authorized implementers have successfully completed the warfarin management qualification exam. 5. Remedial training will occur if dosing recommendations and above management outcomes fall below an acceptable range and in all cases where preventable major adverse drug events occur. 		

Administrative Approvals (as applicable):	Appendix Attached: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Title:
Approving Physician(s)/Authorizer(s):	Appendix Attached: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Title: 1. Hamilton FHT Family Physicians Approval List / Signatures attached