

## **King West Medical Associates Medical Directive**

### **Management of INR and dose adjustment in anticoagulated patients**

Activation Date:

Contact Person(s):

Margaret Jin, Clinical Pharmacist

XX, Office Manager

XX, Registered Nurse

XX, Registered Nurse

#### **Delegated Procedure**

See Appendix I: Warfarin dosing algorithm

Nurse will be given responsibility for interpretation of INR result and determination of whether the INR result falls into predetermined parameters (see indications). If INR falls within acceptable parameters, Nurse will take responsibility to notify patient of result, document INR in EMR and discharge patient, with a date for next INR measurement. If Nurse determines that INR does not fall within acceptable parameter, Nurse will refer to algorithm or Clinical Pharmacist for further evaluation. Clinical Pharmacist when presented with a patient whose INR does not fall within acceptable parameters will assess patient. If a dose adjustment is necessary Nurse or Clinical Pharmacist will have the authority to adjust warfarin, according to agreed upon warfarin adjustment algorithm (see appendix I). Pharmacist or Nurse will attempt to utilize the medication that the patient has with them for adjustment of dose but if this is not possible, pharmacist or nurse will have the authority to initiate a prescription to take to responsible physician for signature. Prescription will be given to the patient while still in the clinic and clear instructions will be given to patient on dose adjustment. A date for next INR measurement will be given to the patient.

If Clinical Pharmacist is not present, then the Nurse will consult with the family physician most responsible for the patient.

#### **Recipient Patients**

Included, are those patients currently receiving warfarin or nicoumalone for treatment of atrial fibrillation or venous thromboembolism or other medical conditions where long term use of anticoagulation is indicated. Future considerations may be given to patients in long term care facilities, but currently that is not the intention of this medical directive.

Patients include those under the care of the physicians of King West Medical Associates Network including: Dr. XX, Dr. XY, Dr. YY, Dr. YZ, and Dr. ZZ.

### **Indications**

Nurse will interpret INR result. If target range for INR 2-3 and pt falls within 2.2-2.8 and this is consistent with previous readings, no action required. If target range for INR 2.5-3.5 and pt falls within 2.7-3.3 and this is consistent with previous readings no action required. If Nurse presented with INR result that does not fall within above parameters, the patient will be referred to Clinical Pharmacist for assessment. If patient falls outside of above parameters, a clinical assessment of patient by pharmacist, will be necessary. Dose adjustment or other appropriate action(s) are at the discretion of the Clinical Pharmacist or Nurse. INR testing intervals will be at the discretion of Clinical Pharmacist or Nurse.

If Clinical Pharmacist is not present, then the Nurse will consult with the family physician most responsible for the patient.

### **Contraindications:**

Patients INR results fall grossly outside INR target range and thus patient's family physician or attending physician will be consulted by Clinical Pharmacist. INR of  $< 1.5$  or  $> 5.5$  will trigger a second INR reading, a consult with physician or clinical pharmacist.

### **Documentation and Communication:**

The Nurse will document patient's INR in the EMR any important findings in discussion with patient.

If assessment by Clinical Pharmacist is necessary, finding and actions as well as directions to patient and any dose adjustments or new prescriptions will be recorded.

### **Review and Quality Monitoring Guidelines:**

If any party to this directive identifies quality issues relating to patient care these issues should be directed to the Clinical Pharmacist. The Clinical Pharmacist must act upon these concerns immediately and seek a solution to these concerns. Where it has been determined that better training or qualification is necessary an action plan will be developed to ensure that this takes place. Follow up to ensure that the concern has been addressed will be the responsibility of the Clinical Pharmacist and proper follow up with the person(s) initiating the concern will take place. Action taken will be documented electronically.

# Appendix I

## Warfarin Dosing Algorithm

### Dosing Algorithm: Target INR of 2 to 3

INR	Suggested Warfarin Dose	Recheck INR value
< 1.5	Increase dose 10 to 20%, consider extra dose	4 to 8 days
1.5 to 1.9	Increase dose by 5 to 10% If INR is 1.8 to 1.9, consider no change with repeat INR in 7 to 14 days	7 to 14 days
2.0 to 3.0	No change	Number of consecutive in-range INRS x 1 week (max: 4 weeks) For example, if a patient has had 3 consecutive in-range INR values, recheck in 3 weeks
3.1 to 3.9	Decrease weekly dose by 5 to 15% If INR is 3.1 to 3.2, consider no change with repeat INR in 7 to 14 days	7 to 14 days
4.0 to 4.9	Hold 0-1 dose, decrease weekly dose by 10%	4 to 8 days
≥ 5.0	See below	See below

### Dosing Algorithm: Target INR of 2.5 to 3.5

INR	Suggested Warfarin Dose	Recheck INR value
< 1.5	Increase dose 10-20%; consider extra dose	4 to 8 days
1.5 to 2.4	Increase dose 5 to 10% If INR is 2.3 to 2.4, consider no change with repeat INR in 7 to 14 days	7 to 14 days
2.5 to 3.5	No change	Number of consecutive in-range INRs x 1 wk (max: 4 wks)
3.6 to 4.5	Decrease dose 5 to 10%; consider holding one dose If INR is 3.6 to 3.7, consider no change with repeat INR in 7 to 14 days	7 to 14 days
4.5 to 6.0	Hold for 1 to 2 days then decrease dose 5 to 15%	2 to 8 days
> 6.0	See below	See below

### **Management of significantly elevated INR with or without bleeding**

INR 5.0 to 8.9, no significant bleeding: Omit 1 to 2 doses; reduce dose 10 to 20 %; monitor frequently. Alternatively consider vitamin K1 1.0 to 2.5 mg orally

INR  $\geq$  9.0, no significant bleeding; Hold warfarin therapy; give vitamin K1 5.0 to 10 mg orally; monitor frequently. Resume at lower dose when INR is therapeutic.

Serious bleeding, any INR: Hold warfarin; give vitamin K1 10mg slow IV plus fresh plasma or prothrombin complex concentrate, depending on urgency; repeat vitamin K1 every 12 hours as needed.

Life-threatening bleeding, any INR: Hold warfarin; give prothrombin complex concentrate (or recombinant factor VIIa as an alternative) supplemented with vitamin K1 (10mg slow IV); repeat as needed.

## Appendix II

### **King West approval of management of INR and dose adjustment in anticoagulated patients medical directive**

We, hereby, approve the medical directive for the management of INR and dose adjustment in anticoagulated patients to begin Month XX, 20XX.

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Dr. XX

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Dr. XY

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Dr. YY

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Dr. YZ

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Dr. ZZ