

Anticoagulation Clinic Protocol

I. **Purpose**

To optimize therapeutic anticoagulation by minimizing patient bleeding risks, minimizing time to therapeutic anticoagulation and to increase patient education, monitoring and compliance.

II. **Organization**

The anticoagulation clinic is managed by an RPh with anticoagulation background. The clinic is located in an independent pharmacy located within a medical clinic.

Referrals will be accepted using the attached Physician Referral form and written prescription for the Anticoagulation Clinic. Referrals may be mailed or faxed to the **Pharmacy Name Anticoagulation Clinic** at:

Pharmacy name

Address

Fax:

Phone:

The Pharmacy name Anticoagulation Clinic is CLIA certified, and is one portion of the **Pharmacy Name Cardiac Risk Reduction Center**.

III. **Laboratory Monitoring**

Non-stable patients: Monitored weekly until stable. Patients with dosage adjustments, addition or deletion of drugs that interact with the effects of warfarin will be monitored weekly post-change until INR is stable.

Stable patients: Monitored every 4-6 weeks.

IV. **Goal of Anticoagulation Ranges & Duration of Therapy**

This information will be obtained from the Physician Referral form, which must be signed by the physician. The table below will be used as a guideline to ensure appropriateness of therapy. The physician will be contacted for confirmation of significant variations. Individualized target INRs and duration of therapy may be specified by the physician on the Physician Referral form.

Warfarin Indication	Target INR Range	Duration of Therapy
Prophylaxis & treatment of venous thrombosis	2.0-3.0	3-6 months
Treatment of pulmonary embolism	2.0-3.0	3-6 months
First systemic embolism (any source)	2.5-3.5 THEN 2.0-3.0	1 year THEN indefinitely
Tissue heart valves	2.0-3.0	3 months post surgery
Acute myocardial infarction	2.0-3.0	3 months
Valvular heart disease-with embolism	2.0-3.0 2.5-3.5 then 2.0-3.0	Long term 1 year, then indefinitely
Hypercoaguable states (Antithrombin III, protein S or C deficiencies or malignancy)	2.0-3.0	Lifetime
Prophylaxis for elective or fractured hip surgery	2.0-3.0	6 weeks
Atrial fibrillation -with embolism -with cardiomyopathies →cardioversion	2.5-3.5, then 2.0-3.0 2.0-3.0 2.0-3.0	1 year, then indefinitely long term 3 weeks prior & 3 weeks after sinus rhythm established
Mechanical prosthetic valves	2.5-3.5	Lifetime
Recurrent systemic embolism	2.5-3.5	Lifetime

V. **Dosage Adjustment**

Dosage adjustments will follow the below guidelines. In the case of a patient whose INR has been stable with a minor variation from the goal value, adjustments will be made after two repeat variations from the goal value.

Target INR: 2.0-3.0

<u>INR</u>	<u>Adjustment</u>
< 2	Increase weekly dose by approximately 15%
3.0-3.5	Decrease weekly dose by approximately 15%
3.6-4.0	Hold 1 dose, then decrease weekly dose by 15%
>4.0	Hold 2 or more doses, decrease weekly dose by 15 %
>6.0	Follow Vitamin K-Anticoagulation Reversal protocol

Target INR: 2.5-3.5

<u>INR</u>	<u>Adjustment</u>
< 2	Reload X 1 dose, then increase weekly dose by approximately 15%
2.0-2.4	Increase weekly dose by approximately 15%
3.6-4.0	Hold 1 dose, then decrease weekly dose by approximately 15%
>4.0	Hold 2 or more doses, decrease weekly dose by 15%
>6.0	Follow Vitamin K- Anticoagulation Reversal protocol

VI. **Vitamin K-Anticoagulation Reversal**

In the event of hypercoagulation (INR> 6.0) the following actions will be initiated.

INR	Action
6.0-10.0 (and NO BLEEDING)	Hold Coumadin dose. Have patient return to clinic in 1 day for follow-up INR. Contact physician.
>10.0 and < 15.0 (and NO BLEEDING)	Give 4 mg vitamin K orally. Have patient return to clinic in 1 day for follow-up INR. Contact physician.
>6.0 WITH BLEEDING	Contact physician immediately.

VI. Patient Monitoring

The patient may be questioned regarding the following at subsequent visits:

- a. Compliance with (and confirmation of) recommended dose
- b. Number of doses missed during the past 5-7 days
- c. Medications started or discontinued since last visit
- d. Over the counter medications started or discontinued since last visit
- e. Herbal products started or discontinued since last visit
- f. Diet changes since last visit
- g. Change in exercise routine
- h. Recent acute illnesses
- i. Recent use of alcohol
- j. Peripheral edema
- k. Recent bruising or bleeding problems
 - Minor bleeds (blood in urine, stool, bleeding gums, repeated nosebleeds, etc - The patient will be instructed to hold doses until bleeding resolves. Questionable cases will be referred to the outpatient physician.
 - Major bleeds- The patient will be referred to the outpatient physician.

VIII. Patient Education

Patient education on initial visit will include the following:

- Drug interaction screening with patient's current drug regimen.
- Herb interaction screening with herbals the patient may be taking.
- Dietary considerations.
- Importance of maintaining anticoagulation.
- Signs of hypercoagulation.
- Importance of compliance and follow-up monitoring.
- Written information about herbal interactions, OTC interactions, dietary Vitamin K content, and warfarin information will be given to the patient.
- Importance of medical alert identification.

Follow up education will be conducted on subsequent visits as follows:

- The patient will be questioned about signs of bruising and/or bleeding.

- The patient will be offered repeat education to reinforce previous education.
- Questions will be answered regarding anticoagulation therapy.
- Importance of compliance and follow-up will be reinforced.
- Screening for new or discontinued drugs, OTC products, and herbs will be performed.

IX. Medical Procedures

Prior to a medical procedure the pharmacist will consult the physician performing the procedure and referring physician to coordinate patient care and anticoagulation status.

Following a medical procedure the patient will be monitored until anticoagulation therapy is stable.

X. Reports to Physician

Following a lab value or dosage adjustment for a patient a report will be sent by fax to the referring physician noting values, adjustments made, and information given to the patient orally or in written form.