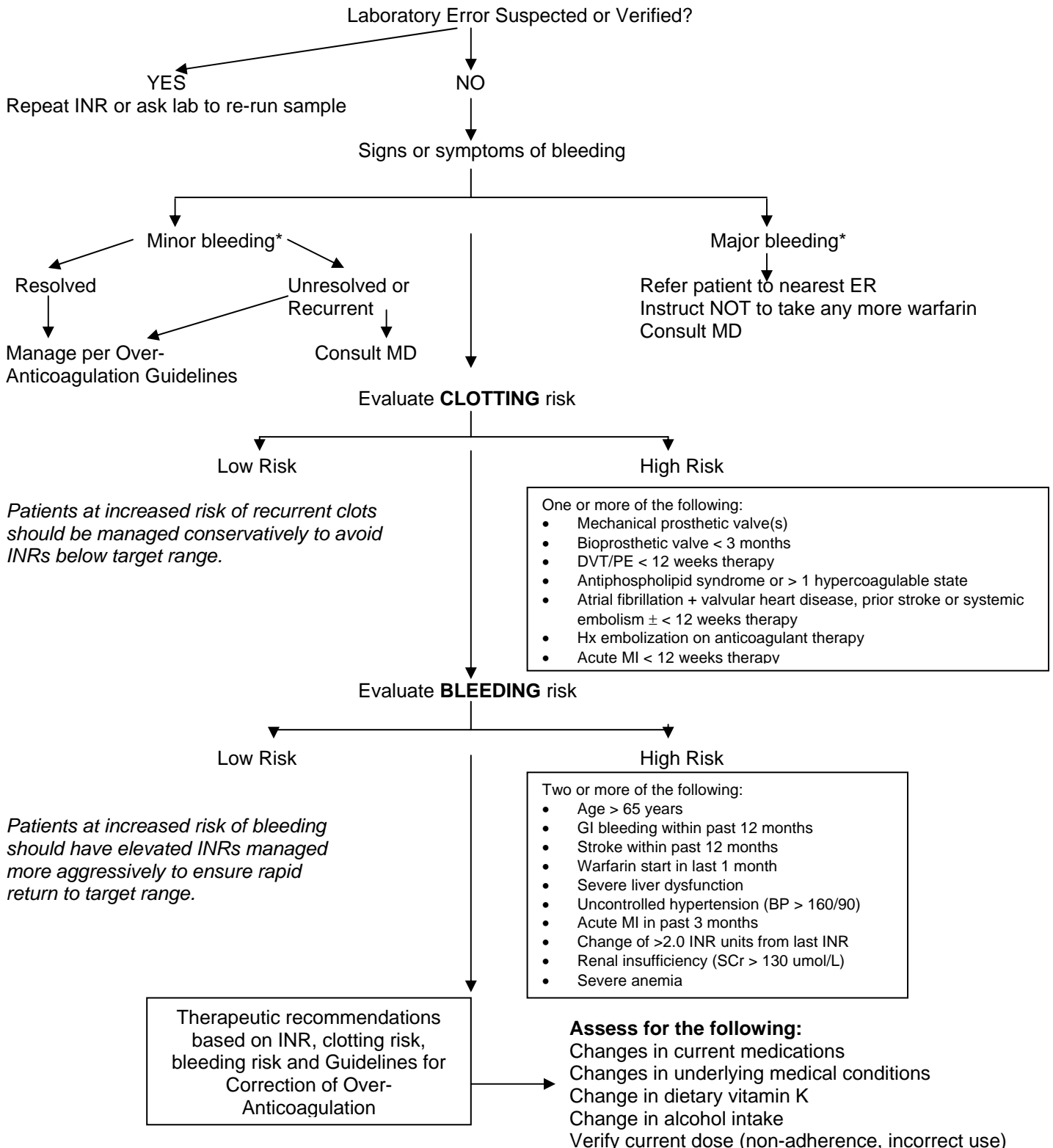


Assessment Nomogram for Supra-therapeutic INRs



***Major bleeding:** any overt bleeding that results in hospitalization, transfusion, or a decrease in Hgb ≥ 20 g/L, any intracranial, intraocular, or retroperitoneal bleeding, and any bleeding resulting in death.
***Minor bleeding:** bleeding that can be managed on an outpatient basis, e.g. mild nosebleeds, bruising, mild hemorrhoidal bleeding, and microscopic hematuria.

Guidelines for Correction of Over-anticoagulation

INR	Clinical Setting	Therapeutic Options
> Target < 5.0	No significant bleeding	Reduce warfarin dose OR Omit warfarin dose x 1, restart at lower dose Recheck INR in 1 – 2 days <u>Note:</u> if only minimally above target range, no dose reduction may be required.
5.0 - 9.0	No significant bleeding	Omit warfarin x 2 doses, restart at lower dose If INR > 6.0 arrange for the patient to receive 1 mg vitamin K ₁ , Omit warfarin x 1 dose Recheck INR in 1 – 2 days Recheck CBC in 1 day in patients with new minor bleeding or high bleed risk¶ Notify MD after contacting patient and arranging initial vitamin K ₁
5.0 – 9.0	Rapid reversal required (i.e. urgent surgery)	Hold warfarin Notify MD Vitamin K ₁ 2 - 4 mg PO (↓ INR within 24 hours) Repeat vitamin K ₁ 1 - 2 mg PO if remains elevated Recheck INR in 1 day (or a.m. of pre-op day)
5.0 – 9.0	Serious bleeding	Hold warfarin, instruct patient to go to closest ER Notify MD Use management strategies for INR > 9.0 (see below) after appropriate assessment of bleeding
> 9.0	No significant bleeding	Hold warfarin until INR in target range Any time INR >9.0 patient to have 5 mg vitamin K ₁ po. Give higher doses vitamin K ₁ 5 - 10 mg PO (↓ INR in 24 – 48 hrs) as needed. ¶ Recheck CBC and INR in 1 day Notify MD after contacting patient and arranging initial vitamin K ₁
> 9.0	Serious bleeding	Hold warfarin, instruct patient to go to closest ER Notify MD Vitamin K ₁ 10 mg slow IV infusion ↓ INR in 6 – 8 hours May repeat q12h Give fresh plasma
> 9.0	Life threatening bleeding	Hold warfarin, instruct patient to go to closest ER Notify MD Give Vitamin K ₁ 10 mg slow IV infusion Repeat if needed Factor VIIa (consult Hematology)

¶ Management strategy for patients with high bleeding risk.

Adapted from: Ansell J, Hirsh J, Poller L, et al. *The Pharmacology and Management of the Vitamin K Antagonists*. Chest 2004; 126: 204S – 233S, Crowther Ma, Douketis JD, Schnurr T, et al. *Oral vitamin K lower the international normalized ratio more rapidly than subcutaneous vitamin K in the treatment of warfarin-associated coagulopathy*. Ann Intern Med. 2002; 137(4) 251-4. University of Alberta AMS Policy, University of Washington Medical Centre Anticoagulation Clinics Policy, Virginia Mason Medical Center Seattle Cardiology Section Anticoagulation Policy.

- Upon assessment by the Anticoagulation Management Service, patients will receive a prescription for vitamin K 1 mg/mL oral solution which can be compounded at Calgary Health Region outpatient pharmacies.
- Patients will be instructed in the use and administration via oral syringe of the vitamin K oral solution by clinic and pharmacy staff.
- This will ensure patients have an accessible supply of oral vitamin K at home if needed.
- The formula for compounding vitamin K oral solution can be made available to community pharmacies by request from the Anticoagulation Management Service.

Formula reference: Calgary Health Region. *Pharmacy Compounding Manual*. D van Schijndel, Ed. Alberta Children's Hospital. January 2002.

Clinical Practice Guidelines are developed to assist in care and treatment decisions and are intended to be used with clinical judgement.