

# Outpatient management of excessive anticoagulation with warfarin

INR/ Clinical scenario	Management: Identifiable cause	Management: No identifiable cause
<b>INR &lt; 5.0 without significant bleeding</b>	Look for potential interacting medications or other identifiable reason for elevated INR	Look for potential interacting medications or other identifiable reason for elevated INR
	Eliminate interacting medication or cause of elevated INR, hold warfarin and recheck INR in 24 hours	If no identifiable reason noted or reason cannot be corrected, hold warfarin and recheck INR in 24 hours
<b>INR ≥ 5 but &lt; 9 without significant bleeding</b>	Monitor INR closely qoD	Monitor INR closely qoD
	When INR approaches the therapeutic range (INR < 4) resume warfarin at previous dose and check INR in 2-3 times per week until INR stabilized then weekly	When INR approaches the therapeutic range (INR < 4) resume warfarin at previous dose and check INR in 2-3 times per week until INR stabilized then weekly
	Look for potential interacting medications or other identifiable reason for elevated INR	Look for potential interacting medications or other identifiable reason for elevated INR
	Eliminate interacting medication or reason of elevated INR, hold warfarin and recheck INR in 24 and 48 hours	If no identifiable reason noted or reason cannot be corrected, hold warfarin and recheck INR in 24 and 48 hours
	If at high risk for bleeding*, give vitamin K <sub>1</sub> 1-2.5 mg PO X 1 dose	If at high risk for bleeding*, give vitamin K <sub>1</sub> 1-2.5 mg PO X 1 dose
<b>INR ≥ 9 without significant bleeding</b>	When INR approaches the therapeutic range (INR < 4.0) restart warfarin at previous dose and check INR 2-3 times per week until INR stabilized then weekly	When INR approaches the therapeutic range (INR < 4) resume warfarin at 20% lower weekly dose and check INR 2-3 times per week until INR stabilized then weekly
	If patient needs reversal for an urgent invasive procedure (within 24 hours), give vitamin K <sub>1</sub> up to 5 mg PO X 1 dose	If patient needs reversal for an urgent invasive procedure (within 24 hours), give vitamin K <sub>1</sub> up to 5 mg PO X 1 dose
	Look for potential interacting medications or other identifiable reason for elevated INR	Look for potential interacting medications or other identifiable reason for elevated INR
	Eliminate interacting medication or reason of elevated INR	If no identifiable reason noted or reason cannot be corrected
	Hold warfarin, give higher dose vitamin K <sub>1</sub> 5 mg PO and monitor INR daily	Hold warfarin, give higher dose vitamin K <sub>1</sub> 5 mg PO and monitor INR daily
<b>Serious bleeding at any INR elevation</b>	Use additional vitamin K <sub>1</sub> (1-2 mg PO) if needed	Use additional vitamin K <sub>1</sub> (1-2 mg PO) if needed
	When INR approaches the therapeutic range (INR < 4.0) restart warfarin at previous dose and check INR 2-3 times per week until stable then weekly	When INR approaches the therapeutic range (INR < 4) resume warfarin at weekly dose at least 20% lower and check INR 2-3 times per week until stable then weekly
	Refer immediately to the Emergency Department	Refer immediately to the Emergency Department
	Hold warfarin, give vitamin K <sub>1</sub> 10 mg IV over 1 hour in monitored setting with an anaphylaxis kit at bedside Consider use of FFP, or NovoSeven (20 µg/kg IV) or FEIBA 50 units/kg IV	Hold warfarin, give vitamin K <sub>1</sub> 10 mg IV over 1 hour in monitored setting with an anaphylaxis kit at bedside Consider use of FFP, or NovoSeven (20 µg/kg IV) or FEIBA 50 units/kg IV
	Monitor INR at least q6h until stably reversed	Monitor INR at least q6h until stably reversed
<b>Life-threatening bleeding</b>	Refer immediately to the Emergency Department	Refer immediately to the Emergency Department
	Hold warfarin	Hold warfarin,
	Give NovoSeven 20-40 µg/kg IV or FEIBA 50 units/kg IV	Give NovoSeven 20-40 µg/kg IV or FEIBA 50 units/kg IV
	Give vitamin K <sub>1</sub> 10 mg IV over 1 hour in a monitored setting with an anaphylaxis kit at bedside	Give vitamin K <sub>1</sub> 10 mg IV over 1 hour in a monitored setting with an anaphylaxis kit at bedside
	Monitor INR at least q6h Vitamin K <sub>1</sub> can be repeated in 12 hours, depending upon INR	Monitor INR at least q6h Vitamin K <sub>1</sub> can be repeated in 12 hours, depending upon INR

Reference: Ansell J, et al. The pharmacology and management of the vitamin K antagonists: The Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy. Chest 2004;126 (Suppl): 204S-233S

\* Bleeding risk factors include recent surgery (within 1 month), active cancer, history of gastrointestinal bleeding or cerebrovascular event, age > 65, serum creatinine > 1.5 mg/dL.

These management guidelines are meant to be flexible. Although they should be followed in most cases, the guidelines do not supersede clinical decision making depending on the patient, the setting, or other factors which may influence such decisions.