# Management of Supratherapeutic INRs

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>INR above therapeutic range but &lt; 5 without significant bleeding</td>
<td>Lower dose or omit dose, monitor more frequently, and resume at lower dose when INR therapeutic; if only minimally above therapeutic range, no dose reduction may be required.</td>
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<tr>
<td>INR ≥ 5 but &lt; 9 without significant bleeding</td>
<td>Omit next one or two doses, monitor more frequently and resume at lower dose when INR in therapeutic range. Alternatively, omit dose and give vitamin K1 (1-2.5 mg), particularly if at increased risk of bleeding. If more rapid reversal is required because the patient requires urgent surgery, vitamin K1 (2 to 4 mg orally) can be given with the expectation that a reduction of the INR will occur in 24 h. If the INR is still high, additional vitamin K1 (1 to 2 mg orally) can be given.</td>
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<tr>
<td>INR ≥ 9 without significant bleeding</td>
<td>Hold warfarin therapy and give higher dose of vitamin K1 (5–10 mg orally) with the expectation that the INR will be reduced substantially in 24–48 h. Monitor more frequently and use additional vitamin K1 if necessary. Resume therapy at lower dose when INR therapeutic.</td>
</tr>
<tr>
<td>Major bleeding at any elevation of INR</td>
<td>Hold warfarin therapy and give vitamin K1 (10 mg by slow IV infusion), supplemented with fresh plasma and prothrombin complex concentrate depending on the urgency of the situation. See guideline: Emergent Management of Critical Bleeds in Patients on Warfarin</td>
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<tr>
<td>Life-threatening bleeding</td>
<td>Hold warfarin therapy and give vitamin K1 (10 mg by slow IV infusion), supplemented with fresh plasma and prothrombin complex. See guideline: Emergent Management of Critical Bleeds in Patients on Warfarin</td>
</tr>
</tbody>
</table>

- Oral and intravenous vitamin K are equally effective at reducing the INR, and are the recommended route of administration. Subcutaneous vitamin K is significantly less effective than either oral or intravenous administration, and is not recommended.

- In patients for whom an INR of 1 is desired, higher doses (> 5 mg) of vitamin K may be appropriate.

- In patients for whom the goal is to achieve a therapeutic INR (2-3.5), higher doses of vitamin K (> 5 mg) can result in over correction and warfarin resistance, with significant delays in achieving a therapeutic INR. For these patients, low dose (1-2 mg) of oral vitamin K is preferred. [2, 3]

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*This guideline has been designed to assist the clinician in decision making. It is not intended to replace clinical judgment where individual patient characteristics may require modification of the recommendations.*
References


These guidelines are endorsed by the following BIDMC Departments and Committees:

Anticoagulation Subcommittee
Transfusion Committee
Interventional Procedure Committee
Department of Emergency Medicine
Department of Anesthesia
Department of Medicine
Department of Neurosurgery
Department of Neurology
Department of Orthopedics
Department of Radiology
Department of Surgery

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