Guidelines for the management of an elevated INR on warfarin, with or without bleeding

These recommendations are derived from the update of consensus guidelines by the Thrombosis and Haemostasis Society of Australia and New Zealand (THANZ) in 2013. These guidelines apply to warfarin reversal. Haematology consultation is recommended for management of bleeding with the novel oral anticoagulants.

Management of patients on warfarin therapy with bleeding

Clinical setting	Recommendations
INR ≥1.5 with life-threatening (critical organ) bleeding	**Cease warfarin therapy and administer:** ▪ Vitamin K_1 5–10 mg IV ***and*** Prothrombinex-VF 50 IU/kg IV ***and*** fresh frozen plasma 150–300 mL If Prothrombinex-VF is unavailable, administer fresh frozen plasma 15 mL/kg.
INR ≥2 with clinically significant bleeding (not life-threatening)	**Cease warfarin therapy and administer:** ▪ Vitamin K_1 5–10 mg IV ***and*** Prothrombinex-VF 35–50 IU/kg IV according to INR (see section below) If Prothrombinex-VF is unavailable, administer fresh frozen plasma 15 mL/kg.
Any INR with minor bleeding	▪ Omit warfarin, repeat INR the following day and adjust warfarin dose to maintain INR in the target therapeutic range. ▪ If bleeding risk is high* or INR >4.5, consider Vitamin K_1 1–2 mg orally or 0.5–1 mg IV.

Management of patients on warfarin therapy with high INR and no bleeding

Clinical setting	Recommendations
INR higher than the therapeutic range but <4.5 and no bleeding	**Lower or omit the next dose of warfarin. Resume therapy at a lower warfarin dose when the INR approaches therapeutic range.** ▪ If the INR is only minimally above therapeutic range (up to 10%), dose reduction is generally not necessary.
INR 4.5–10 and no bleeding	**Cease warfarin therapy; consider reasons for elevated INR and patient-specific factors. Vitamin K_1 is usually unnecessary.** If bleeding risk is high:* ▪ Consider Vitamin K_1 1–2 mg orally or 0.5–1 mg IV. ▪ Measure INR within 24 hours. ▪ Resume warfarin at a reduced dose once INR approaches therapeutic range.
INR >10 and no bleeding	**Cease warfarin therapy, administer 3–5 mg Vitamin K_1 orally or IV.** ▪ Measure INR in 12–24 hours. Close monitoring of INR daily to second daily over the following week. ▪ Resume warfarin therapy at a reduced dose once INR approaches therapeutic range. If bleeding risk is high:* ▪ Consider Prothrombinex-VF 15-30 IU/kg. ▪ Measure INR in 12–24 hours. Close monitoring over the following week. ▪ Resume warfarin therapy at a reduced dose once INR approaches therapeutic range.

In all situations, carefully reassess the need for ongoing warfarin therapy.

Note: the injectable form of Vitamin K can be taken orally for dosing flexibility.

*Recent major bleed (within 4 weeks) or major surgery (within previous 2 weeks), thrombocytopenia (<50 x 10^9/L), known liver disease or concurrent antiplatelet therapy.