Appendix B: Phytonadione (Vitamin K) Dosing Guidelines

Authorized prescriber order is required for holding of warfarin dosing or administration of phytonadione.

Dosing guidelines for rapid reversal in preparation for invasive procedure:

1. Black Box Warning: There is a rare risk (~ 1 in 3000 doses) of an anaphylactic reaction with IV and IM administration of phytonadione.
2. Administer 1 to 2.5 milligrams phytonadione orally for INR within the therapeutic range (phytonadione's smallest tablet form is 5 mg, thus it is acceptable to give one milligram of phytonadione injectable via the oral route). A reduction in the INR can be expected to occur within 24 hours. Repeat INR 24 hours post phytonadione dose. If INR not within acceptable range, may repeat dose of 1-2.5 mg oral phytonadione. For an invasive procedure to be performed within 24 hours, 0.5 to 1 mg phytonadione IV may be given by slow infusion (60 minutes) for INR within the therapeutic range. May recheck INR 12 hours after phytonadione dose. If still elevated, consider administering FFP or an additional dose of 0.5 mg of phytonadione IV. See instructions below for IV administration.
3. Subcutaneous route is not given for warfarin reversal due to erratic and unpredictable absorption.
4. **Phytonadione is never given IV push.**

Dosing guidelines for patients currently on warfarin and no invasive procedure (s) planned:

INR	Low risk of bleeding:	High risk of bleeding:
INR < 5.0:, No significant bleeding	Repeat INR; hold or lower next dose of warfarin. Resume at lower dose when INR therapeutic (check INR daily). If INR minimally above therapeutic range, no dose reduction may be required.	Repeat INR; hold warfarin. Monitor INR daily. Consider small dose of oral phytonadione 1 mg. Resume therapy at a lower dose when INR approaches the therapeutic range.
INR ≥ 5.0 but < 9.0, No significant bleeding	Repeat INR; hold warfarin. Monitor INR every 24 hours. Resume warfarin at a lower dose when INR approaches the therapeutic range.	Repeat INR; hold warfarin. Monitor INR every 12 hours. Consider administer 1 to 2.5 mg phytonadione orally. One milligram of phytonadione may be administered by giving the IV formulation orally (phytonadione's smallest tablet form is 5 mg, thus it is acceptable to give one milligram of phytonadione injectable via the oral route). Resume warfarin when INR approaches the therapeutic range.

INR ≥ 9.0, No significant bleeding	Repeat INR; hold warfarin. Monitor INR every 12-24 hours. Consider oral phytonadione at a dose of 2.5 to 5 mg (INR reduction expected to occur within 24 hours). Resume warfarin at a lower dose when the INR approaches the therapeutic range.	Repeat INR; hold warfarin. Monitor INR every 12 hours. Consider phytonadione orally at a dose of 2.5 to 5 mg (INR reduction expected to occur within 24 hours) or intravenously at a dose of 1-2.5 mg by slow (over 1 hour) IV infusion (INR reduction expected to occur in 8-12 hours). Monitor INR q12 hours and repeat phytonadione administration if necessary. Resume warfarin at a lower dose when the INR approaches the therapeutic range
Serious bleeding at any INR	Hold warfarin. Administer IV phytonadione 10 mg over 1 hour (see instructions for administration below). Monitor INR every 6 hours. Repeat phytonadione if full correction not present at 24 hours. Consider fresh frozen plasma (FFP) 10-15 ml/kg IV or call Blood Bank physician for use of recombinant human factor VII (NovoSeven) or prothombin complex concentrate. Restart warfarin when clinically appropriate.	
Life threatening bleeding	Hold warfarin. Administer IV phytonadione 10 mg over 1 hour (see instructions for administration below) and recombinant factor VII (NovoSeven) or prothrombin complex concentrate (call Blood Bank physician for product dosing and approval) or FFP 10-15 ml/kg IV. Monitor INR every 2 hours and repeat FFP, recombinant human factor VII or prothrombin complex concentrate as needed. Repeat phytonadione 10 mg over 1 hour if INR correction incomplete at 24 hours. Restart warfarin when clinically appropriate.	

NOTE: Coagulopathy secondary to liver disease does not respond to phytonadione administration (Shields et al, 2001).

Adapted from the 2008 Warfarin Reversal Guidelines from the American College of Chest Physicians (ACCP) Consensus Conference on Antithrombotic Therapy (Ansell et al, Chest 2008).

Instructions for administration of IV phytonadione:

1. If phytonadione is to administered intravenously, dilute in 50 ml of normal saline or dextrose solution and administer over 60 minutes. Monitor vital signs every 15 minutes x 4, then every 30 minutes x 2. IV phytonadione is never given IV push.