PHYTOMENADIONE (VITAMIN K_1)

Indication	• Prevention and treatment of vitamin K deficiency bleeding[1], including haemorrhagic disease of the newborn[2] • Antidote to anti-coagulant drugs of Coumarin or Indanedione type[1] • Other forms of hypovitaminosis K (e.g. as a result of factors limiting the absorption or synthesis of vitamin K such as obstructive jaundice, intestinal resection, liver and gastric disorders or alteration of vitamin K metabolism by other drugs[3])

ORAL

Presentation	• Ampoule: Vitamin K_1 2 mg in 0.2 mL
Dosage[1] (prophylaxis)	• For healthy baby, total of 3 doses

Dose No.	Days of life[1]	Dose
1	at birth	2 mg (0.2 mL)
2	between 3–5	2 mg (0.2 mL)
3	at 28	2 mg (0.2 mL)

Preparation	• Nil required
Administration	• Draw up prescribed dose into oral/enteral syringe • Via Oral/OGT/NGT

INTRAVENOUS

Presentation	• Ampoule: Vitamin K_1 2 mg in 0.2 mL
Dosage[1] (treatment)	• Initially 1 mg o Further doses as required according to clinical circumstances and coagulation status[1]
Preparation	• Nil required o May be diluted with 5% glucose to increase volume for administration and enable slow rate of injection[2]
Administration	• Recommendation: MO or NNP to administer (anaphylaxis risk[1]) • Draw up prescribed dose • IV injection over at least 30 seconds[2] o May be injected into an existing infusion of 0.9% sodium chloride or 5% glucose[2]

IM

Presentation	• Ampoule: Vitamin K_1 2 mg in 0.2 mL
Dosage[1] (prophylaxis)	• Dosage according to birth weight (one dose only)

Birth weight	Dose
1500 g or more	1 mg (0.1 mL)
Less than 1500 g	0.5 mg (0.05 mL)

Preparation	• Nil required
Administration	• Draw up prescribed dose • Administer in alternate thigh to that used for hepatitis B vaccine o If multiple injections into same thigh are necessary[4], separate injections sites by at least 2.5 cm • Intramuscular injection into thickest part of the vastus lateralis in the anterolateral thigh[5]

Special considerations	• Route of administration o IM is the preferred route[1,2] o Oral route only suitable for healthy babies o IV route only for treatment of potentially fatal haemorrhage[2] • Check to avoid confusion with adult 10 mg ampoule • For treatment indications, seek specialist advice o May need to be accompanied by more direct forms of effective haemorrhage control such as transfusion of whole blood or coagulation factors to compensate for severe blood loss and the delayed response to vitamin K_1[1] o Seek gastroenterologist advice for hypovitaminosis K • In premature infants weighing less than 2.5 kg, parenteral administration is associated with possible risk of kernicterus[1] • In predominately formula fed neonates, the last oral dose may be omitted[1] • Consent, documentation, and parent information as per local protocols • Consider implementing a local protocol to aid identification of IM injection sites (e.g. vitamin K_1 into left thigh, hepatitis B vaccine into right thigh, hepatitis immunoglobulin into left thigh at least 2.5 cm from vitamin K IM injection site)
Monitoring	• Not required
Compatibility	• Fluids o 5% glucose (use immediately)[2] • Y-site o 5% glucose[2], 0.9% sodium chloride[2]
Incompatibility	• No information[2]
Interactions	• Co-administration of anticonvulsants can impair the action of vitamin K_1[1]
Stability	• Ampoule o Store below 25 °C. Protect from light[1] o Solution is clear, do not use if turbid[1]
Side effects	• Immune: anaphylaxis after parenteral use reported[1] • Integumentary: irritation at injection site[1] • Nervous: facial flushing[1], sweating[1]
Actions	• As a component of an enzyme system, vitamin K_1 promotes the formation of coagulation factors II (prothrombin), VII, IX and X and of the coagulation inhibitors protein C and protein S[1]
Abbreviations	IM: intramuscular, IV: intravenous, MO: most senior medical officer, NNP: neonatal nurse practitioner, NGT nasogastric tube, OGT: orogastric tube
Keywords	Konakion, vitamin K_1, phytomenadione, haemorrhagic disease of the newborn, vitamin K deficiency bleeding, (VKDB)

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

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