VITAMIN K

INDICATIONS

Prophylaxis

- Babies are relatively deficient in vitamin K (phytomenadione). Those who do not receive supplements are at risk of bleeding [vitamin K deficiency bleeding (VKDB), formerly known as haemorrhagic disease of the newborn)]
- All babies should be given vitamin K with parental consent

Therapy

- After blood has been taken for clotting studies, vitamin K can also be used to treat any baby with active bleeding that might have resulted from vitamin K deficiency
- a prolonged prothrombin time (INR ≥3.5) that falls within 1 hr of treatment, with normal platelet count and fibrinogen concentration suggest the diagnosis. However, as INR is a poor indicator of vitamin K deficiency, PIVKA-II is a better investigation if available

ADMINISTRATION

Prophylaxis

- Vitamin K (Konakion MM Paediatric™) as a single IM dose (see **Prophylaxis dosage** below for dosage schedule)
- avoid IV administration for prophylaxis as it does not provide the same sustained protection as IM
- Give in accordance with manufacturer's instructions in order to ensure clinical effectiveness
- If parents decline IM route, offer oral vitamin K as second line option (no evidence of increased childhood cancers with parenteral vitamin K)
- give 2 doses vitamin K 2 mg oral in the first week
  - first: at birth
  - second: aged 4–7 days
- third dose vitamin K 2 mg oral given aged 1 month, if baby exclusively breast feeds (formula milk contains adequate vitamin K)
- If parents decline vitamin K in hospital/community, healthcare professional to clearly inform parents of risks of VKDB (risk of significant bleeding in the brain and that there have been cases where babies have died from this bleeding);vitamin K will prevent this risk
- document conversation in patient records
- provide leaflet (if available) explaining risks and benefits of vitamin K
  - give parents opportunity to read leaflet, and hold second conversation to ascertain if they now wish to consent

IM use

- Do not dilute or mix with other parenteral injections

Oral use

- Break open ampoule and withdraw 0.2 mL (2 mg) into the oral dispenser provided. Drop contents directly into baby's mouth by pressing plunger

Table 1: Prophylaxis dosage

	Konakion MM Paediatric™
Healthy babies of ≥36 weeks and ≥2500 g	**First line** • 1 mg IM at birth or soon after **Second line** • 2 mg oral at birth, then • 2 mg oral at 4–7 days, then • 2 mg oral at 1 month unless exclusively formula fed
Term babies at special risk • Instrumental delivery, caesarean section • Maternal treatment with enzyme-inducing anticonvulsants (carbamazepine, phenobarbital, phenytoin), rifampicin or warfarin • Requiring admission to NNU • Babies with cholestatic disease where oral absorption likely to be impaired	1 mg IM at birth or soon after (Oral vitamin K if IM route declined but not preferable)
Preterm babies <36 weeks but ≥2500 g	1 mg IM at birth or soon after
All babies <2500 g	400 microgram/kg (0.04 mL/kg) IM shortly after birth (maximum dose 1 mg) Do not exceed this parenteral dose The frequency of further doses should depend on coagulation status
Babies who have or may have Factor VIII or Factor IX deficiency or other coagulation deficiency	Unless results of Factor assays normal, give orally – consult with local haematologist

For babies with birth weight ≥2500 g

- Administer Konakion MM Paediatric™ 1 mg (0.1 mL) IM
- this is approximately **half** of the ampoule volume and should be drawn up using syringe supplied with ampoule

For babies with birth weight <2500 g

- Administer 400 microgram/kg (0.04 mL) with a maximum of 1 mg (0.1 mL) of Konakion MM Paediatric™ IM
- round up the dose to nearest hundredth [e.g. 300 microgram (0.03 mL), 500 microgram (0.05 mL) etc.]
- draw up the dose using syringe supplied with ampoule

Table 2

Weight (kg)	Dose (mg)	Injection volume (mL)
1	0.4	0.04
1.5	0.6	0.06
2	0.8	0.08
2.5	1	0.1
>2.5	1	0.1

Therapy dosage

- If not already given IM, give vitamin K 100 microgram/kg IV up to 1 mg maximum dose
- Further doses as required, depending on clinical picture and coagulation status
- may need to be accompanied by a more immediately effective treatment such as transfusion of fresh frozen plasma

IV administration

- If necessary, dilute
- dilution in glucose not recommended for IV administration due to reactions with syringes, but drug can be added to lower port of syringe giving set administering glucose 5% at rate ≥0.7 mL/min (= 42 mL/hr)