

Vitamin K

For the Children





**Henrick Carl Peter
Dam**



**Edward Adelbert
Doisy**

Dam and Doisy shared the 1943 Nobel Prize for medicine for their work on vitamin K (K1 and K2) published in 1939.

Dam – University of Copenhagen

Doisy – University of St Louis

Initially named Koagulationsvitamin.

Save Babies – Give Vitamin K

Function

- Post translational gamma carboxylation of clotting factors II, VII, IX, X and prot C and S

- Vit K concentrations lower in newborn vs mother – placental barrier
- Vit K given to mother does increase blood levels in newborn – so placental barrier not complete.
- Blood half life is short, liver stores minimal therefore ***rapidly deficient*** in first days of life

- Cow's milk / formula higher than BM
- Altered GI flora – lactobacillus vs bacteriodes
- Plasma levels 100 fold higher in formula fed
- Classic HDN – early – first few days

Timing - form

- Early – often Mo on anticonvulsants etc
 - Give mothers Vit K - 2 weeks before delivery
- Classic – day 2 to 7
 - 0.4 – 1.7/100 births in whom Vit K not given.
 - Catastrophic injury
- Late(r) – Wk 2 – 12
 - 4.4 – 10.5 / 100000 births in whom Vit K not given and exclusively breast fed.
 - 1.5 – 6.4 / 100000 births with oral dosing
 - Often with cholestasis – 42%

IM Vit K

- IM Vit K
 - 1955 - Water sol vs lipid sol greater effect on haemolytic disease
 - 1961 AAP recommendation – lipid sol formulation
 - 1977 – newborns not Vit K def – selective dosing – incorrect in retrospect
 - 1980 – reappearance of HDN
 - 1992 – linked to childhood cancer – methodological limitations - not proven in 5 further studies, meta analysis
 - ***No proven risk of cancer / leukaemia associated with Vit K admin***

Oral Vit K

- Oral Vit K
 - Higher risk of HDN than IM dosing
 - Prevents classic but not late disease
 - Careful to give later dose
 - Repeat if vomiting/ spill
- 3 per 100000
- 8 per 325000

One in every 250 newborns who do not receive vitamin K at birth and are exclusively breast fed will have a significant brain or internal organ haemorrhage

Recommendation

- All have IM Vit K MM 1.0mg
- Oral not as good
 - Day 1, 4-6 and then 4 weeks of age
 - Repeat if vomiting
 - Careful of oral dosing – too much rather than too little

Resolution

- For parents declining Vit K
 - Provide NHMRC info
 - Provide WCH info providing statistical risks
 - Provide options including oral Vit K

What should I look out for?

You should always see your doctor or health care worker:

- If your baby has any unexplained bleeding or bruising – this is particularly important if your baby has not had vitamin K.
- If, when your baby is over three weeks old, there are any signs of jaundice (yellow colouring of the skin or whites of the eyes).

Babies with liver problems are particularly at risk, even if they have had vitamin K.

How do I get vitamin K for my baby?

During your pregnancy, your doctor or midwife should ask whether you want your baby to have vitamin K by injection or by mouth, and they will arrange to provide it.

Soon after birth, your baby will have a vitamin K injection or the first dose by mouth. This will be given by a doctor or midwife.

If you have chosen vitamin K by mouth:

- The **second oral dose** can be given when your baby has the newborn screening test in the hospital, or by your local doctor or health care worker.
- You need to remember the **important third oral dose** when your baby is between 3 and 4 weeks old. Talk to your doctor or health care worker if you need help or advice.

Make sure that your baby's vitamin K doses are recorded in the baby's personal health record.



VITAMIN K

for newborn babies

Information for parents

If you need more information,
please contact your doctor
or health care worker

This pamphlet is based on the **Joint statement** and recommendations on vitamin K administration to newborn infants to prevent vitamin K deficiency bleeding in infancy, that was re-issued by the National Health and Medical Research Council (NHMRC) in October 2010.

For a copy of the **Joint statement** and recommendations on vitamin K administration to newborn infants to prevent vitamin K deficiency bleeding in infancy, please visit the NHMRC website:

www.nhmrc.gov.au/publications/idxex.htm

A list of current NHMRC publications it also available from:

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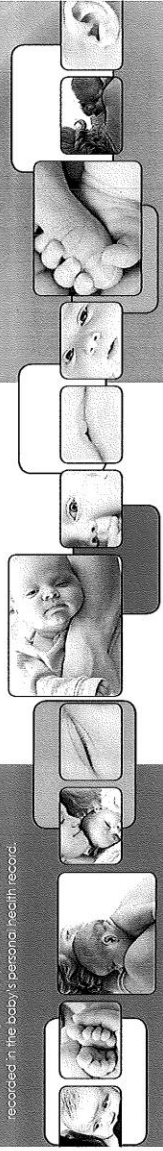
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