

# Informed Choice: Vitamin K

## What is Vitamin K?

Vitamin K is needed to make clotting factors in the blood. Our bodies cannot make Vitamin K and it is not stored very well in our bodies. Vitamin K occurs naturally in the plants we eat and is also produced in the body by beneficial bacteria. All newborn babies have very low stores of Vitamin K compared to adult levels — this is the natural state of the newborn. No amount of vitamin K taken during pregnancy will significantly change the baby's vitamin K levels. Levels of Vitamin K in the newborn begin to rise around one week of life, when Vitamin K starts to be made in the baby's gut.

## Why is Vitamin K routinely given to newborns?

In 1939, it was discovered that giving Vitamin K to newborns reduced the rate of babies who developed Vitamin K Deficiency Bleeding (VKDB), in which young babies experience serious and abnormal internal bleeding. In the 1950's when Vitamin K administration became routine in the US, forceps were a normal part of vaginal delivery and virtually all baby boys were being circumcised within hours of birth. What they observed in this time period was increased bleeding and difficulty getting bleeding to stop in some newborns. Blood tests revealed that babies are born with 20-50% of the blood-clotting activity of adults.

## What is Vitamin K Deficiency Bleeding (VKDB)?

Vitamin K Deficiency Bleeding (VKDB), also known as Hemorrhagic Disease of the Newborn (HDN), is a potentially fatal bleeding disorder that occurs in approximately 1 out of every 10,000 newborns who do not receive a vitamin K shot after birth.

There are three forms of VKDB:

1. Early form – Presents within 24 hours of birth and is almost exclusively seen in

infants of mothers taking drugs that inhibit vitamin K production.

2. Classic form – Occurs between 24 hours and 7 days after birth and is associated with delayed or insufficient feeding. Other risk factors include: low birth weight, prematurity, birth trauma, birth asphyxia, and forceps, vacuum or cesarean delivery.

***Without any form of Vitamin K, 3 to 17 in 1,000 newborns will develop classic VKDB***

3. Late form – Typically seen at 2-12 weeks after birth. The late form is the most rare and often severe. The most common cause is a liver disease that has not been detected until the bleeding occurs. Babies who are taking long-term antibiotics are also at an increased risk.

### ***Late bleeds are rare, but they happen to:***

*4 to 11 babies out of every 100,000 who do not receive any Vitamin K at birth.*

*1 to 7 babies out of every 100,000 who receive 3 doses of oral Vitamin K after birth.*

*0 to 0.64 babies out of every 100,000 who receive injectable Vitamin K after birth.*

The classic and late forms of VKDB are most commonly seen in breastfed babies, because formula is fortified with Vitamin K. All types of VKDB are uncommon — These rates were determined based on European hospital births, where early cord cutting is common and where the rate of interventions is higher than at home births. Early cord cutting limits the blood supply (and therefore, the amount of clotting factors and stem cells) the newborn receives at birth.

# Informed Choice: Vitamin K

What are the risk factors for VKDB?

- Babies born prematurely are at the highest risk,
- those who experience trauma or oxygen deprivation (trauma, circumcision, etc),
- babies whose mothers took certain medications or antibiotics during their pregnancy or labor,
- and babies who received antibiotic treatment soon after they were born.

## How is Vitamin K given?

Vitamin K can be given as an injection (a shot) or orally (as drops of tasteless liquid). Borne Home offers a Vitamin K1 injection, which is consistent with the recommended dose by the American Academy of Pediatrics. The injection method has proven the most reliable at preventing late form VKDB.

Because the research has shown that it is effective at preventing VKDB for most babies, WomanWise also offers the option of oral administration of Vitamin K1. There is only 1 oral regimen that is as effective as the shot: 2 mg orally at birth plus 1mg weekly for 12 weeks. It is recommended that parents who choose the oral route set a timer each day to help them remember.

## What are the benefits of giving my baby Vitamin K?

According to available research, an injection shortly after birth has been proven to reduce the incidence of all forms of VKDB. Oral administration of Vitamin K has also been shown to reduce the incidence of VKDB, but may be less effective at preventing late onset VKDB than injectable prophylaxis.

## What are the risks of Vitamin K injection?

- A Vitamin K injection is a shot and can be painful for the baby. You will be able to

comfort and soothe your baby during and after the injection.

- While one early study showed a link between Vitamin K injections and childhood leukemia no other studies have been able to replicate those results.
- It is not known what potential risk, if any, Vitamin K may pose to newborns. All babies have naturally low levels of Vitamin K at birth, and then begin to produce Vitamin K on their own around one week of age. This is the natural physiologic state of the newborn. Vitamin K increases clotting, and decreases tissue oxygenation. Some researchers have questioned whether this increases the baby's risk for bacterial infection or other disorders.

## Are there alternatives to the Vitamin K Injection?

Alternatives to the Vitamin K injection (which is the standard of care in the US) include:

- Oral Vitamin K — A series of oral Vitamin K is as effective as the injection at preventing classic VKDB. The series also significantly reduces the risk of late onset VKDB, although it is not as effective as the Injection.
- Maternal Vitamin K Supplementation — Only very high doses of Vitamin K taken by the mother will raise the nursing baby's Vitamin K levels to the same level that prophylactic supplementation does. However, some mothers choose to take alfalfa tablets or other Vitamin K rich supplements, to build their own Vitamin K levels before birth.
- Formula Feeding — Infant formula has significantly higher levels of Vitamin K than does breast milk, but the tremendous



# Informed Choice: Vitamin K

benefits of breast milk outweigh any protection afforded by formula against VKDB.

- **Watching For Symptoms** — Many babies who develop VKDB have symptoms, which can be recognized before severe illness sets in. However, some babies will show no symptoms until they are extremely ill or have brain damage.

**Symptoms of VKDB include:** bruising, blood in the urine, blood in the stool, bleeding from the

*umbilicus, bleeding from the nose, other visible bleeding, difficulty breathing, poor feeding, pallor, pinpoint bruises called petechia, vomiting (especially black or bloody vomit), irritability, or high-pitched crying.*

**Even babies who receive Vitamin K prophylaxis sometimes develop VKDB. If your baby shows any of these symptoms, call your midwife or seek medical attention immediately.**

### References and Resources:

Van Winckel M, De Bruyne R, Van De Velde S, Van Biervliet S. "Vitamin K, an update for the paediatrician." Eur J Pediatr. 2009 Feb;168(2):127-34

Matsuzaka T, Yoshinaga M, Tsuji Y. "Prophylaxis of intracranial hemorrhage due to vitamin K deficiency in infants" [Journal Article], Brain Dev 1987; 9(3):305-8

Flood VH, Galderisi FC, Lowas SR, Kendrick A, Boshkov LK. "Hemorrhagic disease of the newborn despite vitamin K prophylaxis at birth." 2008 May; 50(5):1075-7. AAP Committee on Fetus and Newborn (1 Jul 2003) "Controversies Concerning Vitamin K and the Newborn" Pediatrics 112 (1) : 191-192.

CochraneDatabase: <http://www.cochrane.org>  
<http://evidencebasedbirth.com/evidence-for-the-vit-amin-k-shot-in-newborns/>

## Vitamin K Informed Choice Signature Page

I have been provided with written information on Vitamin K administration and have had the chance to ask questions. I understand the benefits and risks of Vitamin K administration. I believe that my midwife has honored my right to make my own informed health care decision about my baby's care. I understand that Vitamin K administration is not mandatory and I believe in my right to accept or decline any test or treatment for my child. I also understand that I can change my mind at any time.

### My choice for prophylactic treatment is indicated below:

- I choose to have a Vitamin K injection given to my baby shortly after birth.
- I choose to have oral Vitamin K given to my baby in the following dosage: 3mg orally at birth plus 1mg weekly for 12 weeks
- I choose not to have Vitamin K given to my baby. I understand that my midwives may recommend Vitamin K if the circumstances of birth increase the risk of VKDB, and I may be asked to reconsider my decision.

Client \_\_\_\_\_ Date \_\_\_\_\_

Partner \_\_\_\_\_ Date \_\_\_\_\_

Midwife \_\_\_\_\_ Date \_\_\_\_\_