

What is vitamin K?

Vitamin K is a necessary part of 4 of the 12 clotting factors in the blood. Because all of the factors interact to form a clot, a deficiency in any one of the clotting factors can cause bleeding disorders. We produce Vitamin K in the gut using the food we eat and substances in the body. A newborn has relatively low amounts of Vitamin K compared to older babies, children and adults. The production of Vitamin K depends, in part, on a fully functioning GI tract. In newborns, full digestion does not happen at birth and depends on whether the baby is breast or formula fed. Also, Vitamin K does not cross the placenta at a high volume. For these reasons, the newborn has a lag time before Vitamin K production begins. Research has shown that they do not have adult levels of vitamin K producing bacteria in their intestines until four to six months of age.

Why is Vitamin K routinely given to newborns?

Vitamin K is given to prevent Hemorrhagic Disease of the Newborn (HDN), also known as Vitamin K Deficiency bleeding (VKDB). This is a very rare disease where the baby suffers from very prolonged blood clotting times, leading to unexplained bleeding and or bruising. It is a serious disease, which can cause severe brain damage or death in about 1/3rd of all cases. Incidence is 0.01% to 1.5% of those who have not received Vitamin K, with the life-threatening incidence estimated to be 5-50 per 100,000 if no Vitamin K is given. This wide range is due to different feeding patterns and risk factors. There are three types of VKDB:

1. **Early Onset:** Very rare, occurs within 24 hours of birth. Usually seen in babies of women on medications such as anticonvulsants, anticoagulants or tuberculosis meds.
2. **Classic:** Occurs during the first week after birth. Preventable by giving Vitamin K. If symptoms of VKDB are present, the baby is likely to recover if they receive Vitamin K.
3. **Late Onset:** Most common type, occurs after the baby's first week, usually between weeks 3-8. Occurs most often in breastfed babies who didn't receive Vitamin K at birth.

Diagnosis is confirmed through a blood test when results indicate that the bleeding infant has a prolonged prothrombin time (PT) together with a normal fibrinogen level and platelet count. Additionally, rapid correction of the PT and or cessation of the bleeding after Vitamin K administration confirm the diagnosis.

Babies at higher risk of developing VKDB include:

- Premature babies
- Babies who had traumatic deliveries (shoulder dystocia, vacuum extractor, forceps)
- Babies of mother's who used medications, including barbiturates or anti-seizure meds
- Babies who suffered fetal anoxia (oxygen deprivation) from placental abruption
- Babies who receive antibiotic treatment (due to changes in intestinal flora)
- Babies having surgery including circumcision
- Breastfed babies who did not receive Vitamin K at birth. This is because breastmilk, unlike formula, which has, extra vitamins added, is relatively low in Vitamin K.

External visible bleeding, evidenced by skin bruising or blood seepage from any body opening or the umbilical stump may be the first warning signs of VKDB. This can quickly lead to serious internal bleeding. 30-60% of the time internal unseen bleeding is from fragile capillaries in the brain and often results in severe delayed development of the infants, or even death. If such bruising or bleeding occurs, a health professional must be contacted right away. Administration of Vitamin K is needed swiftly before seizures begin. Sometimes internal bleeding occurs without visible outward signs.

How is Vitamin K administered?

In hospitals, based on recommendations by the American Academy of Pediatrics, Vitamin K is given as an intramuscular injection of 1.0 mg in the baby's thigh during the first two hours after birth. This has been proven to decrease the incidence of VKDB after only one dose. An alternative to the injectable Vitamin K is giving the vitamin by mouth. Vitamin K has a bitter taste but does spare the baby a shot. However, just one dose of oral Vitamin K does not prevent Late Onset VKDB. The current recommendation for oral Vitamin K is three doses of 2 mg. given at birth, one to two weeks and at four weeks. The oral Vitamin K is not considered as effective as the injectable form.

Is routine use of Vitamin K with newborns necessary?

- The vast majority of medical literature strongly recommends giving babies some sort of Vitamin K at birth. The United Kingdom currently only gives Vitamin K to babies who are premature, low birth weight, or had traumatic births. However, there has been a rise in the occurrence of VKDB with the increase in the numbers of nursing mothers.
- Contrary to the overwhelming majority, Robert Mendelson, MD, in "How to Raise a Healthy Child in Spite of Your Doctor" claims unless the mother is severely malnourished or on medications, the baby's blood will clot just fine.

Vitamin K – Informed Choice Agreement

- Jean Golding, a Vitamin K researcher, says that a relative deficiency in Vitamin K during the critical early growth period of a newborn may protect tissues from mutagenesis and cancer risk at a time of rapid cell multiplication.
- In the early 1990's, several researchers reported that intramuscular injection of Vitamin K was associated with an increased risk of childhood cancer, particularly lymphoblastic leukemia. Other studies have failed to confirm those findings.
- No negative side effects of Vitamin K have been reported.

State of Oregon requirements

The State of Oregon requires one of the following:

- 1.0 mg. of intramuscular Vitamin K within the first two hours after birth.
- 2.0 mg. of oral Vitamin K at birth, one week and at 2-4 weeks.

Alternative options

Possible alternative management of Vitamin K supplementation includes the following. Please note that there is no scientific evidence supporting these management options and their effectiveness with regard to preventing VKDB in the newborn:

- Prenatal supplementation of Vitamin K beginning at 34-36 weeks with 3 grams of alfalfa daily
- Oral administration of botanical Vitamin K – K-Quinone is an oil soluble source of vitamin K-1 (phytonadione), which is the form of vitamin K present in plants. K-Quinone is extracted from alfalfa, nettles and green tea. The oral botanical Vitamin K is administered on the same schedule as the oral vitamin K, one drop at birth, one week and 2-4 weeks.
- Shepherd's purse tincture, which contains clotting factor precursors and Vitamin K (3 drops to infant by month).

Check out <http://evidencebasedbirth.com/evidence-for-the-vitamin-k-shot-in-newborns/> for more information about Vitamin K and the newborn.

YOUR CHOICES. As a parent, you have the right to refuse permission for the prophylactic treatment of Vitamin K to your newborn. Please choose from the following options:

I choose to have 1.0mg of Vitamin K administered through intramuscular injection to my newborn baby at birth.

I choose to have 2.0mg of Vitamin K administered orally to my newborn baby at birth, one week and two-four weeks.

I choose to treat the baby only if signs of VKDB are present: bleeding, bruising, loss of consciousness, shock and seizures. I recognize that damage to my baby from the disease can occur without any outward signs.

I choose to decline the administration of Vitamin K, injectable or oral, to my newborn baby.

I choose the following alternative management:

I have read and understand the information presented above regarding the administration of Vitamin K to my newborn and my questions/concerns have been addressed to my satisfaction. I understand the benefits and risks associated with the administration of Vitamin K to my newborn and take full responsibility for my decision.

Parent(s) _____ date _____

Midwife _____ date _____