

Vitamin K for Newborns: What the Current Science Says and Why My Position Has Changed

Analysis by [Dr. Joseph Mercola](#)

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STORY AT-A-GLANCE

- › Vitamin K deficiency bleeding (VKDB) is a rare but potentially fatal condition in newborns caused by insufficient vitamin K for blood clotting. Late-onset VKDB frequently presents as intracranial hemorrhage with mortality rates of 20% to 50%
- › A single intramuscular injection of vitamin K at birth reduces the risk of late VKDB by approximately 9%, according to a systematic review of surveillance data from four countries
- › The 1992 concern linking intramuscular vitamin K to childhood leukemia has been thoroughly investigated and resolved. Four major population-based studies — spanning Sweden, the U.S., Germany and the U.K. — found no association
- › Oral vitamin K regimens provide meaningful but inferior protection compared to injection, particularly for infants with undetected liver disease who cannot absorb oral vitamin K effectively
- › The proportion of U.S. newborns not receiving vitamin K rose from 2.92% in 2017 to 5.18% in 2024, translating directly into preventable brain hemorrhages. I wrote about this topic in 2010 — the science has moved decisively since then, and so has my position

In 2010, I published an article on this site discussing vitamin K prophylaxis for newborns. That article reflected the state of a legitimate scientific debate that was active at the time, centered on a 1992 study by Golding et al. published in the BMJ that had reported a possible link between intramuscular vitamin K and childhood leukemia.¹

Sixteen years later, I owe you an update, because the science has moved decisively and my position has changed with it. That is how evidence-based medicine is supposed to work. When the data changes, informed positions change too. Every reference in this article has been retrieved from PubMed and can be independently verified by PMID number.

Why Newborns Are Vulnerable

Newborns arrive with very limited vitamin K reserves. The vitamin does not cross the placenta efficiently, breast milk contains only trace amounts of it, and the newborn gut lacks the bacterial population that eventually helps produce it.^{2,3}

This creates a window of vulnerability during the first six months of life when an infant's ability to form blood clots is compromised.

Vitamin K deficiency bleeding, or VKDB, is classified into three forms based on timing: early VKDB occurs within 24 hours of birth and is typically associated with maternal medications; classic VKDB occurs between days one through seven and is related to delayed feeding; and late VKDB occurs between two weeks and six months of age – the most dangerous form because it frequently presents as bleeding inside the brain.^{4,5}

Without any form of prophylaxis, late VKDB occurs in roughly 5 to 80 per 100,000 live births, depending on the population.⁶ When it presents as intracranial hemorrhage, the mortality rate ranges from 20% to 50%, and survivors frequently suffer permanent neurological damage.⁷

How Effective Is the Vitamin K Shot?

The most comprehensive systematic review on this topic was published by Sankar et al. in the *Journal of Perinatology* in 2016. Pooling surveillance data from four countries, they found that a single intramuscular or subcutaneous dose of vitamin K at birth reduced the risk of late VKDB by approximately 98% – a pooled relative risk of 0.02 (95% CI, 0.00-0.10).⁸

The American Academy of Pediatrics reaffirmed its recommendation for universal intramuscular vitamin K at birth in a 2022 clinical report published in *Pediatrics*.⁹ That recommendation has been consistent since 1961 – over six decades of clinical experience.

A 2026 review by Mirone et al. in the *International Journal of Molecular Sciences* provided a detailed molecular analysis of how vitamin K prophylaxis works and confirmed that the intramuscular route provides near-complete protection against both classic and late VKDB.¹⁰

What About Oral Vitamin K?

Some parents prefer oral vitamin K because it avoids an injection. Several European countries, including Switzerland and the Netherlands, have used multi-dose oral protocols with partial success.

However, the evidence consistently shows that oral prophylaxis is inferior to injection for preventing late VKDB. Sankar et al. found that a single oral dose dramatically increased the risk of late VKDB compared to injection (RR 24.5). Multiple oral doses performed better but still showed a nonsignificant trend toward higher risk (RR 3.64).¹¹

A Dutch study by Löwensteyn et al. (2019) demonstrated that even increasing the oral vitamin K dose sixfold produced only a modest reduction in intracranial VKDB. The authors concluded that undetected cholestasis – a liver condition common in breastfed infants – prevents effective absorption of oral vitamin K, no matter how high the dose.¹²

A 2026 Swiss surveillance study confirmed this pattern. Over six years of monitoring 505,708 births, every VKDB case involved either parental vitamin K refusal, unrecognized cholestasis, or both.¹³

A 2025 review in *Nutrition Reviews* added prospective evidence that exclusively breastfed infants can develop vitamin K insufficiency even after receiving the shot at birth, supporting the case for continued supplementation during the first three months.¹⁴

The Cancer Concern Has Been Put to Rest

The most persistent fear about vitamin K stems from Golding et al.'s 1992 case-control study, which reported a nearly twofold increased risk of childhood cancer after intramuscular vitamin K (OR 1.97; 95% CI, 1.3-3.0).¹⁵ This finding triggered a wave of research. Four major population-based studies investigated the question, and the results were unanimous – no association:

- **Ekelund et al. (1993)** – 1.38 million infants in Sweden. Cancer OR: 1.01. Leukemia OR: 0.90. No association.¹⁶
- **Klebanoff et al. (1993)** – 54,795 children, published in the New England Journal of Medicine. Cancer OR: 0.84. Leukemia OR: 0.47.¹⁷
- **von Kries et al. (1996)** – Population-based study in Germany. Leukemia OR: 0.98. No association.¹⁸
- **Fear et al. (2003)** – UK Childhood Cancer Study, 2,530 cancer cases, 4,487 controls. No association with any childhood cancer.¹⁹

Brousson and Klein reviewed this evidence in 1996 in the Canadian Medical Association Journal and concluded there was no compelling reason to change the standard practice.²⁰ The 2026 Mirone et al. review confirmed this conclusion with three additional decades of data.²¹ The cancer question is settled. It should no longer be a factor in any parent's decision about vitamin K.

The Troubling Rise in Refusal

Despite the clarity of the evidence, vitamin K refusal is increasing. A 2026 JAMA study by Scott et al. documented that the proportion of U.S. newborns not receiving vitamin K rose from 2.92% in 2017 to 5.18% in 2024 across more than five million births.²²

An international survey published in *Pediatric Blood & Cancer* found that parental refusal of intramuscular injection is the most common barrier to prophylaxis in high-income countries.²³

What happens when parents refuse? A 2026 case report in *Child's Nervous System* described a two-month-old who arrived at the emergency room unresponsive with a blown pupil. CT scan revealed a massive brain hemorrhage. His INR – the measure of blood clotting – was greater than 15 (normal is around 1). He had not received vitamin K at birth. He required emergency surgery to remove part of his skull to relieve brain pressure.²⁴ He survived. Many do not.

Where I Stand Now

Based on the totality of the published evidence, **I support vitamin K prophylaxis for all newborns**. The intramuscular route provides the most reliable protection. The cancer concern has been definitively resolved.

I advise every parent to discuss vitamin K with their child's pediatrician. If you are uncertain, the prudent choice is to give the shot. The risks of VKDB – brain hemorrhage, permanent damage, death – are real and well documented. The risks of the injection are negligible.

My understanding of this topic has evolved as the evidence has grown. That is how science is supposed to work. When the data changes, informed positions change with it. The data is clear: vitamin K saves lives.

A Note to Parents

If you are a parent researching this topic, I want to be direct with you. The internet contains a significant amount of misinformation about vitamin K. Some of it may reference my own 2010 article. That article reflected the state of a scientific debate that has since been resolved. The science moved forward, and so have I.

Your pediatrician is your best resource for newborn care decisions. Vitamin K deficiency bleeding is rare, but when it occurs, the consequences can be devastating and irreversible. A single injection at birth can prevent it. Please talk to your doctor.

Sources and References

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