

## Objectives

- List the most prominent physiologic reasons that newborns are susceptible to vitamin K (VK) deficiency postnatally and explain the rationale for the current recommendations for routine vitamin K prophylaxis at birth
- Outline the parental reasons presented for refusal of prophylactic vitamin K administration at birth and discuss approaches potentially useful for engaging and providing resources for parents and families
- Differentiate between early-onset, classic, and late-onset vitamin K deficient bleeding (VKDB) based on neonatal or infant age at the time of presentation, most common presenting clinical signs, and laboratory findings
- Summarize the methods, results, and conclusions of the multi-center study presented that assessed the prevalence of subclinical vitamin K deficiency in preterm infants pre-and post-NICU discharge
- Explain the concerns presented regarding preterm infants, regardless of vitamin K prophylactic status, who are exclusively fed human breastmilk without supplementation following discharge from NICU

# Vitamin K Deficiency Bleeding-Still An Important Concern

## Content Outline

1. Case Series of Hemorrhagic Disease of the Newborn
  - 1.1 Overview of vitamin K role in coagulation
  - 1.2 Recommendations regarding prophylactic vitamin K dosing
  - 1.3 Examples of VKDB with classification by age and clinical presentation
  - 1.4 Factors contributing to parental refusal for vitamin K prophylaxis
2. Exclusive Breastmilk Feeding and Risk of Developing Subclinical Vitamin K Deficiency Despite Vitamin K Prophylaxis at Birth
  - 2.1 VK-dependent procoagulants synthesized in the liver
  - 2.2 VK-dependent proteins synthesized in extrahepatic tissues
  - 2.3 Description of multi-center study assessing prevalence of subclinical VK deficiency in preterm infants pre-and post- NICU discharge
    - 2.3.1 Results, discussion, and conclusions
    - 2.3.2 Future research into VK insufficiency in infancy and bone quality

## Reading Material Resources

### Module WB2559: Vitamin K Deficiency Bleeding-Still An Important Concern

is based on the resources listed below. A copy of each resource is included with the module.

Hemorrhagic Disease of the Newborn: A Case Series Illustrating Preventable Harm, Sellers A et al., *Journal of Pediatric Health Care*, (2022), 37(1), 67-73

Exclusively breastmilk-fed preterm infants are at high-risk of developing subclinical vitamin K deficiency despite intramuscular prophylaxis at birth, Clarke P et al., *Journal of Thrombosis and Haemostasis*, (2022), 20, 2773-2785