

VITAMIN K PROPHYLAXIS

Vitamin K is essential for the production of blood-clotting factors. Healthy bacteria in the intestines produce Vitamin K. The newborn's intestinal tract is sterile at birth and therefore newborns have low levels of Vitamin K until their intestines are colonized with bacteria to produce it. Newborns, therefore, have lower levels of Vitamin K than adults for the first six weeks. If bleeding occurs, the newborn's blood can take longer to clot (to stop the bleeding) than an adult's.

While most newborns will not have blood-clotting problems, up to 1.5% will develop Hemorrhagic Disease of the Newborn (HDN). Although rare, HDN can cause serious internal bleeding in the brain or body which can lead to brain damage or death. Newborns have been receiving Vitamin K at birth since the 1950's to decrease the incidence of HDN.

There are three types of HDN:

- *early-onset* occurs in the first 24 hours, may not be prevented by Vitamin K administration.
- *classical* occurs in the first week, protection is provided by oral and injectable Vitamin K
- *late-onset* occurs from 2-12 weeks of age up to 6 months of age, mostly affecting breastfed babies.

In BC hospitals, Vitamin K is routinely given to all newborns to prevent this condition. A single intramuscular injection into the baby's thigh within a few hours of birth is the most common method. Another option is to administer Vitamin K orally. There are no proven adverse effects associated with administration of Vitamin K, by either method, to the newborn.

Parents may choose from the following options:

INJECTABLE: A single injection of 1 mg is administered to a term newborn within several hours of birth. This is the most common method to administer Vitamin K and has been researched the most. Although the injection is very effective it can be painful to the newborn. In the past there have been queries whether injectable Vitamin K was responsible for an increase in childhood cancers however there has not been evidence supporting these claims. Boys who will be circumcised should receive injectable Vitamin K.

ORAL: While shown to decrease the incidence of HDN, oral administration is not shown to be as effective as injectable administration especially when only administered once. Therefore, a double dose (2 mg) of the intramuscular formulation of Vitamin K is given orally at the time of the first feeding, again at 2 weeks, and again at 4 weeks of age. By giving multiple doses, it is believed that very similar rates of protection against both classical and late HDN can be achieved (Enkin et al). The double dose is also used because Vitamin K is less absorbable orally than injectable. It is important to ensure that all doses are received to provide maximum protection to the newborn.

NO VITAMIN K: Without supplemental Vitamin K the incidence of HDN is 1 in 17,000 for breastfed babies, and 1 in 20,000 for formula fed babies. It is not known why breastfed babies have higher incidence of HDN than formula fed babies. There is no evidence showing if maternal intake of Vitamin K through diet or supplements impact the incidence of HDN. While it is not possible to know which babies are at highest risk of HDN, it is believed that those born prematurely, who have visible bruising, or those born via forceps or vacuum deliveries are best protected against HDN by receiving injectable Vitamin K. If you have previously chosen not to have Vitamin K administered to your baby your midwife will discuss this with you at the time of birth if applicable.

References:

1. British Columbia Reproductive Care Program. 2001. Newborn Guideline 12: Vitamin K1 Prophylaxis. Vancouver <http://www.rcp.gov.bc.ca/guidelines/Master.NB12.VitK.pdf>
2. Canadian Paediatric Society. 2004. Position Statement: Routine Administration Of Vitamin K To Newborns. <http://www.cps.ca>
3. Enkin, Murry; Keirse, Marc J.N.C.; Neilson, James; Crowther, Caroline; Duley, Lelia; Hodnett, Ellen; Hofmeyr, Justus. 2000. 3rd Ed. A Guide to Effective Care in Pregnancy and Childbirth. Oxford University Press. Toronto.

EYE PROPHYLAXIS

Approximately 1-12% of all newborns develop conjunctivitis (an infection of the inner lining of the eye) in their first four weeks. Many microorganisms may cause neonatal conjunctivitis, and can be passed from the mother to the newborn during a vaginal birth. The most serious of these are Gonorrhoea or Chlamydia. These can cause permanent blindness in the newborn if untreated. Most other bacteria would cause a treatable eye infection with no long-lasting effects.

In British Columbia, healthcare workers are required by law (Health Act Communicable Disease Regulation) to administer antibiotic ointment to the newborn's eyes within one hour after birth in order to prevent conjunctivitis. The topical antibiotic used currently is an ointment containing 0.5% erythromycin. Erythromycin ointment is not painful for the baby, but it will cause brief blurring of the newborn's vision until the ointment is absorbed.

You may legally refuse treatment if you do not wish eye prophylaxis for your baby. The risk of passing on an infection is minimal if you are in good health, have been screened for current sexually transmitted diseases, have no history of sexually transmitted diseases, if you do not use 'recreational' drugs, if you are not HIV positive and if you are in a long-term, monogamous relationship.

References:

1. British Columbia Reproductive Care Program. March 2001. Newborn Guideline 11: Eye Care and Prevention of Ophthalmia Neonatorum. Vancouver <http://www.rcp.gov.bc.ca/guidelines/NB1MasterEyeCareFebruary.pdf>
2. Canadian Paediatric Society. 2002. Position Statement: Recommendations for the prevention of neonatal ophthalmia. <http://www.cps.ca>
3. Enkin, Murry; Keirse, Marc J.N.C.; Neilson, James; Crowther, Caroline; Duley, Lelia; Hodnett, Ellen; Hofmeyr, Justus. 2000. 3rd ed. A Guide to Effective Care in Pregnancy and Childbirth. Oxford University Press. Toronto.

NEWBORN SCREENING

Newborn screening is done between between 1-3 days after birth. Routine newborn screening identifies infants who may appear healthy but have a rare disorder. Through early detection and treatment, the severe consequences of undiagnosed or untreated disease, including mental handicap and death, can be avoided. Screening is done by pricking the baby's heel with a lancet and collecting drops of the baby's blood on filter paper for analysis. There are no adverse effects or increased risks associated with newborn screening. However, the newborn may experience pain and/or bruising at the site of the blood test.

22 metabolic disorders are screened for in this one test. A total of about 40 babies per year in BC will be identified to have one of the disorders (about 1 in 1,000). The disorders screening for include:

Metabolic disorders. These occur when the body is not able to break down (metabolize) certain substances in food like fats, proteins or sugars. These substances can build up in the body and cause serious health problems which can usually be prevented with early treatment.

Endocrine disorders. Babies with endocrine disorders make too little of certain hormones. Replacement of these hormones prevents growth problems, mental handicap, shock or unexpected death.

Blood disorders. Blood disorders happen when the part of the red blood cell that carries oxygen (hemoglobin) throughout the body is changed. Hemoglobin is important because it picks up oxygen in the lungs and carries it to the other parts of the body. Serious health problems can be prevented through medicines and special treatments.

Cystic Fibrosis. Cystic fibrosis is an inherited life-limiting disorder. It causes thick mucus to build up in the lungs, digestive system (and pancreas) and other organs. Most people with CF get chest infections, have problems digesting their food and, as a result, they may not gain weight as well as they should. Early treatment can be started with medicines and physical therapy that help babies with cystic fibrosis digest food and keep their lungs clear of mucus. CF affects about 1 in every 3,600 babies in BC.

*For a specific list of each disorder screened for please visit the **Newborn Screening Program** at www.newbornscreening.bc.ca*

References:

1. Newborn Screening Program of British Columbia. <http://www.newbornscreeningbc.ca>
2. Perinatal Services BC 2009. Newborn Guideline 9: Newborn Screening. Vancouver http://www.perinatalervicesbc.ca/sites/bcrpc/files/Guidelines/Newborn/NBS_Guideline_9.pdf

INFORMED CONSENT

I have read and understand the information provided to me and have had my questions answered by my midwife.

VITAMIN K

- I **wish to have injectable** Vitamin K administered to my baby in the first hour after birth.
- I **wish to have oral** Vitamin K administered to my baby at birth, and at 2 weeks and 4 weeks after birth.
I understand my midwife may recommend injectable Vitamin K should my baby have risk factors for bleeding including prematurity, bruising, or an instrumental delivery.
- I **refuse both oral and injectable** Vitamin K for my baby. I understand my midwife may recommend treatment should my baby have risk factors for bleeding including prematurity, bruising, or an instrumental delivery.

EYE PROPHYLAXIS

- I **wish** to have erythromycin ointment applied to my baby's eyes in the first hour after birth.
- I **refuse** erythromycin ointment for my baby.

NEWBORN METABOLIC DISORDERS SCREENING

- I **wish** to have newborn screening done between 1-3 days after the birth of my baby.
- I **decline** newborn screening for my baby. I will agree to sign an additional Informed Refusal form which will be sent to the BC Newborn Screening Program.

Client's Signature _____ Date: _____

Midwife's Signature _____ Date: _____