Clinical Perspectives In Lactation

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Breastfeeding – A Child's First Immunization

In 2005, the United Nations Children's Fund's (UNICEF), Executive Director Ann M. Veneman stated, "Breastfeeding is considered to be a child's first immunization." That statement is still true today and important to remember and promote during of the H1N1 flu virus threat. H1N1 immunizations will be provided to infants only over the age of six months. Breastmilk can protect infants not only from H1N1, but other infective and chronic illnesses as well. The following is reprinted with permission from Breastfeeding Cues, February 2002, provided by Kennedy's Women's and Children's Services, a program of the Southern New Jersey Perinatal Cooperative. To view more Breastfeeding Cues view this website: http://www.umdnj.edu/ibeedweb/newsletter/

Breastfeeding compensates for the immaturity of a newborn's immune system.

Before birth, the mother does quite a good job of protecting her baby from environmental infections, but after birth, outside the shelter of the womb, the baby faces a world of microbes with only the beginnings of an ability to protect itself. Over the next few years the baby's immune system will develop gradually, but in the meantime, Nature provides a shield via mother's milk. Parents can give formula and other foods to supply nutrients, but these foods do not protect the baby from infections or help to build immunity

Bioactive substances in human milk protect in three ways.

First, there are factors that crowd out, seek out, or disable pathogens. They include live cells that attack harmful microbes, enzymes and free fatty acids that kill bacteria and protozoa, and proteins and sugars that prevent germs from attaching to mucosal linings. Some of these factors are targeted to certain pathogens, others are non-specific.

Second, factors in human milk work synergistically to modulate immune function. Inflammation is a first step for fighting microbial invaders in adults, usually associated with pain and tissue damage. In the infant, human milk's anti-oxidants, prostaglandins, enzyme inhibitors, protease inhibitors, and anti-inflammatory cytokines not only fight germs but also mute the baby's inflammatory response. The baby gets the protection without going through the pain, heat, and swelling of inflammation. Growth factors promote the maturation of the gut lining, so that fewer harmful substances (antigens and pathogens) can be absorbed. To cover the time until gut maturation is complete, mothers' milk delivers secretory IgA (sIgA). An exclusively breastfed baby ingests about 4 grams of sIgA per day in the first four days and 1 gram per day thereafter. sIgA paints the inside of the baby's gut, occupying sites where pathogens might otherwise attach.

Third, mothers' milk carries messengers that prime the infant's immune system. The breastfed baby's thymus does not shrink like the formula-fed baby's thymus, presumably because it is actively engaged in developing immune function. Human milk stimulates the baby to produce sIgA and interferon on its own. Milk prolactin boosts the development of the baby's T and B cells.

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Breastfeeding—A Child's First Immunization continued...

Antibodies in milk can stimulate the baby's antibody production. Milk cytokines work together in a variety of ways to enhance immune system development.

Breastfeeding sustains the link between the mother's and baby's immune systems that was established during gestation. Maternal plasma cells that produce IgA are released from the MALT (mucosa-associated lymphoid tissue in the mother's gut and lung). These plasma cells "home" to the secretory tissue of the breast, where they program the production of specific antibodies to pathogens the mother has encountered. Presumably the baby shares her environment, encounters those same pathogens, and utilizes maternal antibodies from milk for self-defense.

Breastfed babies respond better to their shots.

Breastfed babies have been shown to mount a stronger immune response, developing higher antibody titers to several common vaccinations than babies who get no breastmilk. Thus, breastfeeding enhances other protective measures that the parents will provide for their child.

Protection is dose-related.

In early epidemiological research it was a common practice to compare the protective effects of "any breastfeeding" vs. "no breastfeeding." In the past decade investigators have begun making more clear differentiation within breastfeeding groups. When a study has an "exclusive breastfeeding" group, that group usually demonstrates the best protection from infections.

Practical tips for mothers:

1. Begin breastfeeding as soon as possible.

Most babies display feeding cues within the first hour of birth. Babies should be kept in contact with the mother's body until the first feeding has ended, even if this process takes longer than the grownups think is proper or convenient! The baby who is born in a hospital is exposed to many more kinds of germs than he or she would encounter at home and needs this first dose of colostrum for protection.

2. Breastfeed exclusively from birth unless supplementation is medically indicated.

Colostrum, "Nature's vaccine," is delivered by the GI route, so putting other fluids into the baby's gut can interfere with colostrum's protective effect. In addition, formula exposes the baby unnecessarily to foreign proteins at a time when the gut is permeable to large molecules.

3. Colostrum is the first vaccine, and breastmilk is the daily booster.

Make it a goal to breastfeed exclusively for six months, and to continue breastfeeding with appropriate complementary foods until well after the first birthday.

4. Share the baby's environment.

While current science has not yet provided evidence to support the practice, theory suggests that a nursing mother whose baby who is staying in a day care center or a Neonatal Intensive Care Unit should do her best to share her baby's environment. This will increase her chances of encountering the same microbes that her baby is meeting, so that her body can deliver tailor-made antibodies in her milk. When she visits, a mother can have a snack or a drink, change a diaper, use the telephones, and hug or shake hands with the caregivers. It might even help her antibody production, as well as boosting her milk supply, to bring home something her child has worn in the environment and tuck it around her pillow when she sleeps.

What providers say makes a difference!

We encourage parents to lay their children down supine for sleep, to get their scheduled immunizations, and to use an approved safety seat in cars. Let's tell parents how they can help their children build a strong immune system by breastfeeding.

For more information:Hamosh M, Bioactive factors in human milk, pp 69-86; Heinig MJ, Host defense benefits of breastfeeding for the infant, pp 105-123; both in Schanler, RJ, guest editor, Breastfeeding 2001, Part 1: the evidence for breastfeeding. Pediatric Clinics of North America, Feb 2001.

H1N1 (Swine Flu) Resources

The following resources can help educate your mothers and colleagues regarding breastfeeding and the H1N1 flu virus. Keep checking the Centers for Disease Control and Prevention (CDC) web sites frequently for more news. The CDC breastfeeding page is www.cdc/gov/breastfeeding.

Here are some other helpful websites:

You can sign up for daily email alerts at www.cdc.gov/h1n1flu/

The August 28 webcast for information can be watched at www.flu.gov/news/knowwhattodo.html#082709.

In total, there are five CDC guidance documents that include specific infant feeding information:

Feeding Your Baby: What Parents Should Know www.cdc.gov/h1n1flu/infantfeeding.htm

Considerations Regarding Novel H1N1 Flu Virus in Obstetric Settings www.cdc.gov/h1n1flu/guidance/obstetric.htm

What Pregnant Women Should Know About H1N1 Virus www.cdc.gov/h1n1flu/guidance/pregnant.htm

Pregnant Women and Novel Influenza A (H1N1) Virus: Considerations for Clinicians www.cdc.gov/h1n1flu/clinician_pregnant.htm

Interim Recommendations for Facemask and Respirator Use to Reduce Novel Influenza A (H1N1) Virus Trans-mission www.cdc.gov/h1n1flu/masks.htm

Marketing – the Latest

While formula companies spend millions in marketing an artificial product to parents to feed to their infants, funds for breastfeeding promotion and support are limited. What is the best way to market breastfeeding to the current generation? New ideas are needed. How should the information about the benefits of breastmilk reach your pregnant clients?

Formula companies are trying to make their products sound as good as breastmilk. Mead Johnson, a formula manufacturer, recently marketed on their website "The Breastmilk Formula- Enfamil." This deceptive advertising was reported to the Federal Trade Commission (FTC) and several days later Mead Johnson removed the title tab. Parents essentially pay for marketing by formula companies as the price of a can of formula must cover the manufacturer's advertising costs. Marketing strategies include not only website and media advertisements but also lunches, trinkets, educational offerings and trips for health professionals.

Federal regulation §2346.11(c)(7)(i) governing the WIC program states that all WIC programs will develop "A policy that creates a positive clinic environment which endorses breastfeeding as the preferred method of infant feeding." Kansas WIC policy requires positive breastfeeding messages on educational materials and displays and no visible display of formula products or formula names on items such as cups, pens, notepads, etc.

What can you do? Unethical marketing practices can be report to the Federal Trade Commission at https://www.ftccomplaintassistant.gov/FTC_Wizard.aspx?Lang=en or contact the National Alliance for Breastfeeding Advocacy (NABA) at http://www.naba-breastfeeding.org/ Ask health professionals to refrain from distributing newsletters, gifts and formula discharge bags to parents. Support organizations like NABA and Best for Babes. Together we can make a difference.

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Our Vision—Healthy Kansas living in safe and sustainable environments.

FYI's

There is yet another new formula out there that is tempting parents with its advertising campaign. Enfamil Restful advertisements' state it will help infants sleep longer and implies that parents will have a more restful, longer sleep too. This formula has the exact configuration of Enfamil AR. Sleeping longer and deeper is not necessarily a good thing for a baby putting the infant more at risk for SIDS. Direct complaints to FDA, asking about the safety of inducing sleep in infants during the high risk period for SIDS (age two to four months.)

There have been questions about advice on the CDC website for breastfeeding moms who have flu symptoms. The website states in many places for a mother to express her milk and have someone else feed the baby. This advice contraindicates traditional wisdom that by the time the mother is showing symptoms of an illness her infant has already been exposed and is already receiving antibodies against the illness.

Many concerns about this advice have appeared on LactNet (an international lactation listserv) including: this approach may put both the mother and infant at greater risk of other illnesses; an ill mother may not feel like pumping adequately to empty her breasts which can set the mother up for mastitis and a loss of breastmilk production; the baby may receive formula supplementation resulting in a loss of protection afforded by the maternal antibodies; one supplementation of formula can destroy the infant's intestinal health and make it more permeable to bacteria and viruses; and the infant may be exposed to unfamiliar germs from a substitute caregiver who may also be sick. The best protection for infants is exclusive breastfeeding and limited exposure to infected persons.

Quote of the quarter

"If a multinational company developed a product that was a nutritionally balanced and delicious food, a wonder drug that both prevented and treated disease, cost almost nothing to produce and could be delivered in quantities controlled by the consumers' needs, the very announcement of their find would send their shares rocketing to the top of the stock market. The scientists who developed the product would win prizes and the wealth and influence of everyone involved would increase dramatically. Women have been producing such a miraculous substance, breastmilk, since the beginning of human existence." ~Gabrielle Palmer