

Dealing with fears of chemical pollution of breastmilk

In recent years there have been an increasing number of reports in the press about the problems caused by dioxins in the environment. These articles commonly cite information about dioxins and other contaminants found in human milk.

Dioxins are produced during various industrial processes, particularly during burning and incineration. They are contaminants found throughout the environment. Dioxins are stored in body fat and are extremely persistent. 90-95% of the human body's burden of dioxin is absorbed from the food we eat, and 5-10% from the air we breathe. Developing babies are also exposed in the uterine environment.

Breastmilk is often cited as an indicator of human exposure to environmental contamination. The reason for this is that fat soluble contaminants are relatively easily measured in breastmilk - and *not* because breastmilk is any more contaminated than other parts of the body.

A recent review noted that studies have shown that the effects from dioxin exposure were associated with transplacental, rather than breastmilk, exposure. It concluded that breastfeeding should continue to be promoted and supported.¹

As a result of these and other findings, a number of countries have advocated that breastfeeding should *continue* to be "encouraged and promoted on the basis of convincing evidence of its benefits to the overall health and development of the infant ».²

The International Baby Food Action Network (IBFAN) agrees with this recommendation and further recommends that the ongoing debate about dioxin and other persistent pollutants should not unduly influence a mother's decision to breastfeed.

- Breastmilk provides optimal, unique, and perfectly balanced nutrition for a baby.
- Breastfeeding affords many irreplaceable health advantages for both mother and child.
- Breastmilk provides immunological factors which may reduce the risk of toxin damage.
- Pregnant women and breastfeeding mothers should be alert to the problems caused by chemical contaminants.
- All citizens should work to raise awareness of the dangers of environmental pollution and advocate for strong environmental protection policies and regulations.

IBFAN urgently calls upon decision-makers in governments and industry to adopt environmentally protective policies in production and waste-disposal, to promote awareness of ecological dangers, and to create an appropriate legal framework which will prevent the harmful contamination of our environment and which will protect the health of our children, both present and future generations.

Breastfeeding, why...

¹ Van Leeuwen FXR, Younes MM. Assessment of the health risk of dioxins: re-evaluation of the tolerable daily intake (TDI), *Food Additives and Contaminants* 17(4), 2000.

² Ministry of Agriculture, Food and Fisheries, United Kingdom (1996), Dioxins in human milk, Food Surveillance Information Sheet.

Onyango AW, Esrey SA, Kramer MS. Continued breastfeeding and child growth in the second year of life: a prospective cohort study in western Kenya, *The Lancet*, 354: 2014-2045, 1999.

UNICEF and WHO recommend that breastfeeding continue for two years and beyond. Researchers in Kenya carried out a study to determine to what extent this recommendation affected child growth. 264 children in Western Kenya were measured and weighed for 6 months (range 9-18 months). The children were separated into three categories at follow-up: short, medium and long duration. Only 5.3% of the children were not breastfeeding at the beginning of the study. By the end of the study, 65.5% were still breastfeeding. Households with short duration of breastfeeding were wealthier than those with longer duration of breastfeeding. Results showed that the unadjusted weight and length gains during follow-up were significantly higher in the long-duration than in the short-duration breastfeeding. The longest-duration breastfeeding group gained 3.4 cm and 370 g more than those in the shortest-duration group.

The authors concluded that their study supported the WHO and UNICEF recommendation of continued breastfeeding for two years and beyond.

Vestergaard M, Obel C, Henriksen TB, Sorensen HT, Skajaa E, Ostergaard J. Duration of breastfeeding and developmental milestones during the latter half of infancy. *Acta Paediatrica* 88: 1327-1332, 1999.

Studies have suggested that breastfeeding may have a positive effect on long-term brain development. Researchers in Denmark studied 1'656 infants at the age of 8 months to determine whether breastfeeding affected mental development below the age of 1 year. Three developmental milestones were measured: crawling, pincer grip, and polysyllable babbling. Duration of breastfeeding was classified according to the number of months of exclusive breastfeeding. The results showed that 38.8% of the 7-month olds could babble in polysyllables. 93.7% of the mothers had exclusively breastfed their children for at least 1 month, with 65.7 % continuing until 4 months. The proportion of children who had mastered the milestones increased consistently with increased duration of exclusive breastfeeding. For example, 73.4% of babies who were exclusively breastfed for 6 months or more were polysyllable babblers versus 48.5 % of babies who had been exclusively breastfed for only 1 month. There was little or no confounding from various factors like family social status, mother's education, gestational age or mother's employment.

The authors believe that the causal relation between breastfeeding and brain development has

major public health implications and should be explored further.

Smulevich VB, Solionova LG, Belyakova SV. Parental occupation and other factors and cancer risk in children: I. Study methodology and non-occupational factors, *International Journal of Cancer* 83: 712-717. 1999.

Increasingly, research is concentrating on the long term effects of infant feeding practices. A study carried out in Moscow was designed to determine whether both occupational and non-occupational factors were associated with childhood cancers. In this first part of the study factors other than occupational were analyzed with relation to the occurrence of childhood cancers. Factors which did not show any association included smoking habits of the parents, parental alcohol consumption, and educational and socio-economic status of the parents.

Factors which had some association with cancers included pathology during pregnancy, cancers in parents and grandparents, and duration of breastfeeding. When the duration of breastfeeding was not longer than 1 month the risk of all cancers, leukemias and non-Hodgkins' lymphoma were higher. There was a 7-fold increase for all cancers when the child was breastfed less than one month compared with those breastfed for 12 months or longer.

Chen CH, Wang TM, Chang HM, Chi CS. The effect of breast- and bottle-feeding on oxygen saturation and body temperature in preterm infants, *Journal of Human Lactation* 16(1): 21-27, 2000.

Authors of a study carried out in Taiwan explain that Eastern health workers believe that Chinese preterm infants need to bottle-feed for a long time because they are too fragile to breastfeed. In order to respond to this myth researchers compared the oxygen saturation, heart rate, respiratory rate and body temperature of 25 preterm infants during bottle- and breastfeeding. A comparison of breast and bottle-feeding of the same infant was made once the infant could latch on and feed effectively. The results showed that oxygen saturation and body temperature were significantly higher during breastfeeds than during bottle-feeds. Pulse and respiratory rates were also higher while breastfeeding. There were two episodes of apnea (breath pause longer than 20 seconds) and 20 episodes of oxygen desaturation (PaO₂<90%) during bottle-feeding, but not during breastfeeding.

The authors conclude that "for Eastern preterm infants, breastfeeding is a more physiologically beneficial feeding method... and that culture, race and preterm delivery should not be an excuse for postponing breastfeeding".

Fomon SJ, Ekstrand J. Fluoride intake by infants, *Journal of Public Health Dentistry* 59: 229-234, 1999.

Too high an intake of fluoride in infancy is associated with fluorosis of the secondary teeth. This problem can be of major importance in communities with low breastfeeding rates and fluoridized local water

supply. Researchers in the USA analyzed the fluoride intake of infants with various feeding regimes. The fluoride content of human milk ranges from 5-10 µg/l. Artificial baby milks are sold in several forms: ready-to-feed-liquid, concentrate, and powders. The fluoride content in these formulas can vary widely, usually depending upon the fluoride content in the water used to dilute them. Until 1978, manufacturers produced the infant formulas with local water supplies the fluoride content of which was often very high. Since then manufacturers have removed the major part of the fluoride of local water supplies in manufacturing the products. However, for the powder form of formulas, parents use unmodified local water to prepare the formula and the fluoride content can be as high as 980 µg/l. In order to reduce the risk of fluoridosis, the authors recommend that infant formulas not be prepared from fluoridated water and no fluoride supplements be given.

McVea KLSP, Turner PD, Pepler DK. The role of breastfeeding in sudden infant death syndrome, *Journal of Human Lactation* 16(1): 13-20, 2000.

A meta-analysis of 23 studies meeting the inclusion criteria showed that breastfeeding reduced the risk of sudden infant death syndrome (SIDS) on average by half. Although the studies try to reduce the effect of confounding factors, reduced risk of SIDS in breastfed infants may be affected by other parental or environmental factors, as well as by breastfeeding.

Breastfeeding, how...

Henderson L, Kitzinger J, Green J. Representing infant feeding: content analysis of British media portrayal of bottle feeding and breast feeding. *British Medical Journal* 321: 1196-1198, 2000.

The decision to breastfeed is very often influenced more by socio-cultural factors than by health considerations. In order to investigate what these cultural factors might be, researchers in Great Britain analyzed the content of 235 television and 38 newspaper references to infant feeding for one month. During March 1999, 13 national newspapers covering a broad political spectrum were analyzed. At the same time television programmes were analyzed which featured parenting, health, and infants, along with programs which reflected a variety of subjects: news bulletins, soap operas, and medical drama series. The results showed that on television breastfeeding was rarely shown: there was only one scene of a baby being put to the breast...

However, there were 171 scenes of bottle preparation or bottle-feeding. Breastfeeding was more often a social issue story line, often with humour. In contrast bottle-feeding appeared in all types of programmes, often showing positive male involvement. References to breastfeeding often showed potential problems, but rarely were bottle-feeding problems

mentioned. No references were made to the health benefits of breastfeeding.

Similar patterns were shown in the press with potential breastfeeding problems highlighted but none mentioned for bottle-feeding. Breastfeeding was associated with middle-class families or celebrity women, whereas bottle-feeding was associated with "ordinary" families.

The authors conclude that the British media do not promote a positive image of breastfeeding even though it is the infant feeding method that provides the most health benefits. In designing breastfeeding interventions or campaigns there is a need to study women's responses to media representation of infant feeding.

Haider R, Ashworth A, Kabir I, Huttley SRA. Effect of community-based peer counsellors on exclusive breastfeeding practices in Dhaka, Bangladesh: a randomized controlled trial, *The Lancet* 356:1643-1647, 2000.

Although Bangladesh has high breastfeeding initiation and duration rates, exclusive breastfeeding is rare. With 95% of pregnant women delivering their infants at home, hospital-based exclusive breastfeeding promotion activities have limited effect.

Therefore researchers designed and tested a peer, homebased intervention to improve exclusive breastfeeding rates. Peer counsellors were trained for 40 hours in breastfeeding counselling skills, were responsible for 12-25 mothers, and paid an honorarium. The counsellors visited mothers 15 times within the 2 last trimesters, 3 early postpartum, and every 2 weeks until the child was 5 months old. There were 363 women enrolled in each the control and the visited (intervention) groups. The mothers were also interviewed about the birth and at monthly intervals for 5 months about breastfeeding status.

Results showed a strong beneficial effect of peer counselling. At 5 months, 70% of the visited group were still breastfeeding exclusively, compared with only 6% of the control group. Other results showed that breastfeeding was started earlier in the visited group and fewer prelacteal foods (31%) were given compared with the control group (89%). 70% of the controls and 54% of the visited groups started complementary foods during the first 4 months.

Mothers in the control groups said that they started other foods because they thought they did not have enough breastmilk, while mothers in the visited groups started other foods because the mothers returned to work.

Cattaneo A, Davanzo R, Ronfani L. Are data on the prevalence and duration of breastfeeding reliable? The case of Italy, *Acta Paediatrica* 89: 88-93, 2000.

Breastfeeding promotion activities are carried on world-wide in order to fulfill the WHO and UNICEF recommendations that infants be exclusively breastfed for about 6 months, then the introduction of complementary foods and continued breastfeeding well into the second year. In order to design promotional activities and set goals, national breastfeeding rates need to be assessed. Researchers in Italy analyzed 16 national studies in order to judge the reliability of these studies.

They found that most studies chose a non-representative sample, that only 2 of the studies used the WHO standardized definition of breastfeeding, and that all the studies used a recall time different from the recommended 24-hour period. They concluded that these studies failed to represent the actual prevalence and duration of breastfeeding, and that "should the Ministry of Health decide to establish objectives and targets for breastfeeding, well designed studies, using the WHO definitions and recall periods, will have to be periodically conducted on representative samples of children under 2 years of age".

Ojofeitimi EO, Esimal OA, Owolabi OO, Oluwabusi, Olaobaju OF, Olanuga TO. Breast feeding practices in urban and rural health centres: Impact of Baby Friendly Hospital Initiative in Ile-Ife, Nigeria, *Nutrition and Health* 14: 119-125, 2000.

The UNICEF-WHO Baby Friendly Hospital Initiative (BFHI) has shown itself to be an effective method of improving breastfeeding practices world-wide.

Researchers in Nigeria compared breastfeeding practices among mothers delivering in an urban BFHI designated hospital with mothers delivering in a rural, non-BFHI health center. Breastfeeding mothers in both groups were mostly engaged in farming, petty trading and office work.

Results showed that 61% of mothers started breastfeeding within 30 minutes after birth in the BFHI facility, while only 39% started within 30 minutes in the non-BFHI hospital. With regards to exclusive breastfeeding, three-quarters of the mothers from the BFHI facility exclusively breastfed as compared with 35% from the non-BFHI hospital. Contrary to other studies of developing countries, data in this study showed higher education of the mothers was associated with higher exclusive breastfeeding rates. 81% of the mothers in the BFHI facility put their babies to the breast in a satisfactory position compared to 19% in the non-BFHI facility.

The authors conclude that BFHI training needs to spread from the urban centres into the rural health facilities in order to give babies there the best start in life.

Vogel A, Hutchison BL, Mitchell EA. Factors associated with the duration of breastfeeding, *Acta Paediatrica* 88: 1320-1326, 1999.

In view of the many health benefits to mothers and children afforded by breastfeeding, governments have set goals for breastfeeding practices and rates. Because these goals are not being met in New Zealand, researchers there designed a study to learn what factors play a role in determining how long a mother breastfeeds. 350 mother-infant pairs were recruited, 91% of whom were followed up for one year. Breastfeeding was started by 97.4% of the mothers, with a median duration of 7.6 months. 30% were still partially breastfeeding at 1 year.

The most common reason for stopping breastfeeding was perceived insufficient milk in the first months. Most mothers stopped breastfeeding in the second half of the first year more often because they believed they had fed long enough. Younger maternal age and a return to full-time work during the first year also were associated with a shorter length of breastfeeding. Mothers who stated that they had no plans as to how long to breastfeed tended to have shorter duration, while those planning to breastfeed 6 months or longer had the longest duration. Also, the use of a bottle, whether it contained formula, breastmilk or juice, was associated with more than double the risk of shorter duration. Having mastitis and sharing the mother's bedroom was associated with longer breast-feeding duration.

Guise J-M, Freed G. Resident physicians' knowledge of breastfeeding and infant growth, *Birth* 27(1): 49-53, 2000.

It is well documented that breastfed babies have a different growth pattern than formula-fed babies. Breastfed babies show a slower gain starting around 4 months. Judging breastfed infant growth using a bottle-fed infant growth chart can lead to stopping breastfeeding or premature introduction of complementary foods. Researchers in the USA surveyed 107 resident doctors about their plotting infant growth. None of them used growth charts for breastfed babies when plotting growth of breastfed babies. Only 5% knew that breastfed babies grow at a slower rate than artificially fed infants.

Prepared by the **Geneva Infant Feeding Association (GIFA)**, a member of the **International Baby Food Action Network (IBFAN)**

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