

New Evidence on Health Risks of Powdered Milk Formulas for Babies

In January 2010, the **Ministry of Environment and Water of the United Arab Emirates** ordered the withdrawal of a batch of tainted follow up formula packages produced in Turkey. The Abu Dhabi Food Control Authority found that these products were contaminated with *Enterobacter sakazakii*, bacteria which can cause severe infections in young babies.

Scientific studies detecting harmful bacteria in unopened containers of powdered infant formula (PIF) have shown that potentially lethal bacteria such as *Enterobacter sakazakii* and *Salmonella* species may be found at low levels. These bacteria can multiply to dangerous levels once the powder is mixed with warm water to make the feed. Cases have been reported worldwide in Belgium, France, Middle East and USA, leading to law suits brought by parents of infants who have ingested powdered formulas and have developed serious infections, either fatal or leading to lasting neurological impairment.

What is important is to prevent such tragedies from happening in the first place.

In 2007, the **World Health Organization** and the **Food and Agriculture Organization** issued the warning that: "Powdered infant formula is not sterile. It may contain bacteria that can cause serious illness in infants. Correct preparation and handling reduces the risk of illness". WHO and FAO followed with comprehensive Guidelines on the preparation, storage and handling of PIF for safer formula feeding: http://www.fao.org/ag/agn/agns/files/pif_guidelines.pdf

Scientific evidence has conclusively proved that breastmilk provides protection against infections and stimulates the infant's immune system at a vulnerable stage of the child's development. On the other hand the risks of formula feeding are evident from many studies, all concluding that bottle-fed babies are at increased risk of diarrhea, respiratory infections, allergies, asthma, obesity and diabetes.

Despite all the evidence, the concept of freedom of choice or "lifestyle choice for parents" is one of the justifications made by infant formula manufacturers to defend the massive promotion of their products. Using formula feeding rather than breastfeeding is presented as simple choice between

two products: powdered infant formula and breastmilk.

Breastmilk and powdered formulas are not equivalent. Formula feeding lacks the immunological protection afforded by breastmilk and thus puts infants at risk for a wide range of infectious diseases. While many parents and care-givers are already aware of the risks to babies caused by formula feeding using dirty water in unhygienic conditions, few are aware of risks from bacterial contamination.

Further scientific evidence published in January 2010 suggests that bacterial contamination of PIF may be more widespread than previously recognized. The authors of the study published in the *Journal of Pediatrics*¹ state "It has been determined that PIF is not a sterile product and that making it sterile is not feasible". They note that the US Food and Drug Administration mandates monitoring for *Enterobacter* and *Salmonella* species. They demonstrate that their research suggests that these species may not be the only bacteria of concern.

After a baby in the UK developed infant botulism caused by PIF contaminated by *Clostridium botulinum*, the researchers in California conducted a two-year series of tests of powdered formulas manufactured in the USA. *Clostridium botulinum* is one of the spore-producing bacteria in the genus *Clostridium* and produces the protein toxin botulism, one of the most potent poisons known. The spores of these bacteria can multiply in the infant's gut and cause infant botulism, the intestinal toxemia form of botulism: the toxins are absorbed and cause neuromuscular blockade². Honey and corn syrup have been identified as one source of infant botulism and are no longer recommended for babies under one year of age.

This is the first study on the potential for contamination of PIF with strains of *Clostridium*. The study was small and concerned only 19 California infants suffering from botulism. The researchers found that 5 out of 30 samples of the powdered formulas ingested by these infants contained spores of *Clostridium*, while 7 out of 9 samples of unopened packages of purchased commercial formula contained these spores.

78% of samples of market-purchased formula thus contained close bacterial relatives to *Clostridium botulinum*. These bacteria are also found in soil and marine sediments and in human and animal excreta. There-



fore, if such a wide variety of these species can occur in such quantities in cans of PIF with intact factory seals, is there not cause for concern that *Clostridium botulinum* may also be isolated - if a larger sample size of cans is examined?

The researchers thus concluded "Neurotoxic clostridial spores have the potential to be present in these products". And given the potential risk to infant health, they recommend "A more extensive study (on) a possible public health hazard from the potentially pathogenic clostridial spores that may be present in commercial formula in the United States".

What is of further concern to parents and health care professionals is that the contaminated infant formula products tested in the study were manufactured and used in the USA, where conditions of storage and use of PIF may be of the highest standard. In countries where these conditions cannot be met, there are also no facilities for testing and identifying strains of bacteria. At the present time no studies and no data are available from these countries, several of which are in the Middle East. ■

Alison Linnecar

International Coordinator, IBFAN-GIFA

Avenue de la Paix 11

1202 Geneva - Switzerland

Tel: + 41 22 798 91 64

Fax: + 41 22 798 44 43

IBFAN - the International Baby Food Action Network

¹ Presence of Soil-Dwelling Clostridia in Commercial Powdered Infant Formulas. *The Journal of Pediatrics* - Volume 156, Issue 3, March 2010, Pages 402-408

² Honey and corn syrup have been identified as one source of infant botulism and are no longer recommended for babies under one year of age.

في شهر كانون الثاني (يناير) ٢٠١٠، أمرت وزارة البيئة والمياه في الإمارات العربية المتحدة بسحب دفعة من مواد توبييب ملوثة خاصة بحليب الأطفال مصدرها تركيا. وكان السبب الأساسي أن سلطة مراقبة الأغذية في أبو ظبي وجدت أن هذه المنتجات ملوثة ببكتيريا *Enterobacter Sakazakii* القادرة على التسبب بالتهابات شديدة لدى الأطفال. بالإضافة إلى ذلك، أشارت الدراسات التي أكدت وجود بكتيريا مؤذية في عبوات غير مفتوحة من حليب الأطفال المجفف إلى إمكانية وجود بكتيريا مؤذية مثل *Enterobacter Sakazakii* و *Salmonella* بمستويات منخفضة. وأن بإمكان هذه الكائنات الصغيرة أن تتكاثر لتصل إلى مستويات خطيرة بعد مزج البودرة بالماء الحارة لتحضير الوجبة الغذائية.

REFER TO RIN 102 ON PAGE 80

If you'd like to have your "Word" listed in this section, please write to : editorial@mefmag.com