

## Infant Nutrition

### Breastmilk Retinol Levels in Bangladeshi Mothers: Reflection on the Serum Retinol Level of Infants

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**Objective:** Examine the retinol levels in breastmilk and serum of 32 mothers and same from cord blood and serum of infants of urban middle class families.

**Methodology:** Colostrum and morning collection of full expression of breastmilk at 4, 12, and 20 weeks were obtained. Cord blood and infant's serum at 6, 14, and 22 weeks were taken. All samples were collected and stored at -20 °C following standard procedures. These were analyzed by the high pressure liquid chromatography (HPLC) method. The fat content of breastmilk was estimated by creamatocrit method on the day of specimen collection.

**Results:** The retinol content of breastmilk (9%) and serum samples (17%) was below 10 µg/dl; the retinol content of all breastmilk (22%) and serum samples (59%) was below 20 µg/dl. Both median and mean retinol levels in mothers' milk were directly correlated with the amount of fat in the breastmilk samples. The median fat content of mothers' milk was 7% (range 3-20) with a lower median in the colostrum (6%). The colostrum retinol level was low (14.1 µg/dl±14.22); the breastmilk retinol level increased up to 12 weeks (61.9 µg/dl±43.72) and had a slight decrease at 20 weeks. The median fat and retinol contents were the lowest in the colostrum (7.2±2.4% and 14 µg/dl±14.2 respectively). The breastmilk retinol levels had a mean value of 72.67 µg/dl, 72.30 µg/dl, and 67.96 µg/dl at 4, 12, and 20 weeks' samples respectively. The median serum retinol level for cord blood samples was 16 µg/dl±2.7, and the values for the serum samples collected at 6, 14, and 22 weeks were: 12.97 µg/dl, 21.5 µg/dl, and 19.79 µg/dl respectively.

**Conclusion:** Infant's serum appears to reflect only 20-40% of the consumed breastmilk in the previous two weeks. The results of the study indicate that maternal reserves of retinol must be improved to produce adequate vitamin A status in their infants.

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### Initial Breast-feeding Practices of Urban Mothers Can be Influenced by Peer Counselling

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**Objective:** Assess the effect of peer counselling on early postpartum breast-feeding practices of urban mothers.

**Methodology:** Forty localities of similar size in Dhaka were randomized as intervention or control areas. From each of the 20 intervention areas, local women who had breastfed their babies and were motivated to help other mothers, were trained as peer counsellors. Three counselling sessions were provided (two visits before delivery in presence of influential family members, and one within 48 hours of delivery) to initiate early breast-

feeding and to breastfeed exclusively for five months. Socioeconomic data and information on previous infant-feeding practices were collected in the last trimester of pregnancy by trained interviewers. On day 4, they collected post-delivery feeding practices.

**Results:** Mothers selected for the study (363 in each group) were of similar age and socioeconomic status. Significantly more mothers in the intervention group initiated breast-feeding within one hour (64% vs. 15%) and gave their babies colostrum as the first food (69% vs. 11%). Of the intervention mothers whose babies had received prelacteals, most reported that either the baby's grandmothers had administered the prelacteals contrary to their own wishes, or they had to accept the advice of local health facility staff and family members. In spite of these obstacles, on day 4, significantly more mothers were breastfeeding exclusively in the intervention group (84% vs. 30%).

**Conclusion:** Peer counsellors can improve early postpartum breast-feeding practices, but could be even more effective if health staff and family members do not give conflicting advice.

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## Exclusive Breast-feeding Reduces ARI and Diarrhoea Deaths among Infants in Dhaka Slums

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**Objective:** Describe the breast-feeding practices and assess the effect of exclusive breast-feeding in early infancy on the risk of infant deaths, especially those due to acute respiratory infections (ARI) and diarrhoea.

**Methodology:** In a prospective study in the slums of Dhaka city, 1,677 infants were followed up from birth till 12 months of their age. Based on the baseline information at enrollment, the infants were visited 5 more times for anthropometric measurements and infant-feeding information. Verbal autopsy, based on a structured questionnaire, was used for assigning causes to the 180 reported deaths. Proportional hazards regression models were used for estimating the effect of breast-feeding practices, introduced as a time-varying variable, after accounting for other variables.

**Results:** The proportion of infants exclusively breastfed was only 6.2% at enrollment, increasing to 53.1% at 1 month and then gradually declining to 4.8% at 6 months of age. Predominant breast-feeding declined from 65.9% at enrollment to 4.1% at 12 months of age. Very few infants were not breastfed, while the proportion of partially breastfed infants increased with age. The breast-feeding practices did not differ between the low- and the normal birth-weight infants at any age. The overall infant mortality was 114 deaths per 1,000 live-births. Compared to exclusive breast-feeding in the first few months of life, partial or no breast-feeding was associated with 2.30-fold higher risk of infant deaths and 2.48- and 3.96-fold higher risk of deaths due to ARI and diarrhoea respectively.

**Conclusion:** The important role of appropriate breast-feeding practices in the survival of infants is clear from this analysis. The reduction in ARI deaths underscores the broad-based beneficial effect of exclusive breast-feeding beyond its role in reducing dietary contamination as evident here in the strong protection against deaths