

## Exclusive breastfeeding recommendation unchanged

**Editor** – The secondary analysis published in the article by Bahl et al. in the June 2005 issue of the *Bulletin* (1) confirms the strong protective effect of breastfeeding against death among infants in Ghana, India and Peru, where infant mortality due to infectious disease is high. The strength of this protective effect is somewhat larger than that observed in the pooled analysis of three smaller observational studies (2), thus strengthening the arguments against the use of breast-milk substitutes under these conditions in the first half of infancy, even when the mother is HIV-positive (3). However, we are concerned with one of the study's findings: "the risks of death or hospitalization associated with being predominantly breastfed were not significantly different from those associated with being exclusively breastfed."

The analysis presented was limited to infants who were older than 6 weeks (in Ghana and India) or 10 weeks (in Peru). The protective effect of exclusive breastfeeding (in comparison with predominant breastfeeding) may be greatest in the first months and may not have been as strong in the older infants in this study. Furthermore, as the authors acknowledge, the number of infants who were exclusively breastfed in Ghana and India restricted their ability to assess the difference in risk between exclusive breastfeeding and predominant breastfeeding.

Despite these limitations, the findings section of the abstract and the discussion lead with the statistical similarity of predominant and exclusive breastfeeding. Although this observation is interesting and possibly important, it is not a true "finding" unless the sample sizes are large enough to be confident that the comparison is sufficiently powered to find a difference.

Our concern is not purely academic. Some readers may not fully appreciate that this study was restricted to

infants older than 6–10 weeks and that failing to find a difference may be due to small sample sizes. Emphasis on the statistical similarity between exclusive and predominant breastfeeding in this study could therefore be misinterpreted as implying that exclusive breastfeeding offers no health benefits over predominant breastfeeding. This might undermine the promotion of exclusive breastfeeding from birth, with negative consequences for infant health and survival.

Although Bahl et al. refer to one inconclusive study on the survival benefits of exclusive breastfeeding compared with predominant breastfeeding (4), many other studies do confirm the advantages of exclusive breastfeeding in protection against diarrhoeal diseases and other illnesses (5–8) and provide a solid evidence base for WHO's recommendation to breastfeed exclusively for the first six months without any additional foods or fluids, even water. ■

**Competing interests:** none declared.

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1. Bahl R, Frost C, Kirkwood BR, Edmond K, Martines J, Bhandari N, et al. Infant feeding patterns and risks of death and hospitalization in the first half of infancy: multicentre cohort study. *Bull World Health Organ* 2005; 83:418-26.
2. WHO Collaborative Team on the Role of Breastfeeding in the Prevention of Infant Mortality. Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis. *Lancet* 2000;355:451-5
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6. Morrow AL, Reves RR, West MS, Guerrero ML, Ruiz-Palacios GM, Pickering LK. Protection against infection with *Giardia Lamblia* by breast-feeding in a cohort of Mexican infants. *J Pediatr* 1992;121:363-70.
7. Perera BJC, Ganesan S, Jayarasa J, Ranaweera S. The impact of breastfeeding practices on respiratory and diarrhoeal disease in infancy: A study from Sri Lanka. *J Trop Pediatr* 1999; 45:115-8.
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## Infant feeding in the context of HIV-positive mothers

**Editor** – I would like to comment on the article by Bahl et al. published in the June 2005 issue of the *Bulletin* (1). The authors state in the conclusion section of the abstract that the study's findings have two major implications. The first implication states that "the extremely high risks of infant mortality associated with not being breastfed need to be taken into account when informing HIV-infected mothers about options for feeding their infants."

In fact, there are not extremely high risks of infant mortality associated with not being breastfed in all settings. If it were intended that this be understood as applying to resource-poor settings, it should have been indicated as such by the authors.

The second implication states that "the risks of death are similar for infants who are predominantly breastfed and those who are exclusively breastfed suggests that in settings where rates of predominant breastfeeding are already high, promotion efforts should focus on sustaining these high rates rather than on attempting to achieve a shift from predominant breastfeeding to exclusive breastfeeding."

The study monitored health outcomes only until the infants were six months of age. This does not provide an adequate basis for concluding that there was no significant difference in health

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outcomes. Other readily available studies clearly support the view that infants have better health outcomes when they are exclusively breastfed than when they are mixed fed.

At the very least, this second implication should have specified that it was referring only to the risks of death in the first six months, and it should have acknowledged that substantial differences in mortality and morbidity were likely to appear at later times. Also, the authors should have indicated that it applied only to resource-poor settings.

It appears that the cases studied in the paper by Bahl et al. were not ones in which the mother was diagnosed as HIV-positive. The stated objective of the study makes no reference to the HIV status of mothers. In general, studies on infant feeding in the context of maternal HIV infection generally are based on the premise that the effects of breastfeeding by HIV-positive mothers on their infants' health are likely to be different from those of HIV-negative mothers. To help guide choices with regard to methods of feeding, we need studies on infant feeding patterns and mortality and morbidity outcomes for HIV-infected mothers. The relevance of studies with mothers who are not known to be infected is highly questionable. ■

**Competing interests:** none declared.

**George Kent**<sup>1</sup>

1. Bahl R, Frost C, Kirkwood BR, Edmond K, Martines J, Bhandari N, et al. Infant feeding patterns and risks of death and hospitalization in the first half of infancy: multicentre cohort study. *Bull World Health Organ* 2005;83:418-26.

## Exclusive breastfeeding and postnatal transmission of HIV

**Editor** – I have some comments to make about the article by R. Bahl et al., published in the June 2005 issue of the *Bulletin* (1).

The abstract states that the study has two major implications:

1. "...the extremely high risks of infant mortality associated with not

being breastfed need to be taken into account when informing HIV-infected mothers about options for feeding their infants."

2. "...the risks of death are similar for infants who are predominantly breastfed and those who are exclusively breastfed" and this "suggests that in settings where rates of predominant breastfeeding are already high, promotion efforts should focus on sustaining these high rates rather than on attempting to achieve a shift from predominant breastfeeding to exclusive breastfeeding."

Before making the first of these implications, however, the authors should have stated that this is true only in resource-limited areas.

As far as the second implication is concerned, other studies contradict it. For example, the Zvitambo study carried out in Zimbabwe explicitly concludes that the risk of postnatal transmission of HIV arising from predominant breastfeeding versus that from exclusive breastfeeding varied from 1.6 to 2.7 over an 18-month period, reaching statistical significance at 12 months (2). This indicates that the early introduction of non-human milks and solid foods conveys an especially high risk, but that even non-milk liquids are likely to increase the risk. Therefore, the more strictly that HIV-positive mothers are able to breastfeed exclusively, the lower the risk of them transmitting HIV to their infants and the lower the risk their infants have of dying. ■

**Competing interests:** none declared.

**J. P. Dadhich**<sup>2</sup>

1. Bahl R, Frost C, Kirkwood BR, Edmond K, Martines J, Bhandari N, et al. Infant feeding patterns and risks of death and hospitalization in the first half of infancy: multicentre cohort study. *Bull World Health Organ* 2005; 83:418-26.
2. Iliff PJ, Piwoz EG, Tavengwa NV, Zunguza CD, Marinda ET, Nathoo KJ, et al. Early exclusive breastfeeding reduces the risk of postnatal HIV-1 transmission and increases HIV-free survival. *AIDS* 2005;19:699-708.

## Exclusive and predominant breastfeeding — a letter of reply

**Editor** – We are pleased by the interest generated by our paper (1). Important issues have been raised in the above comments by Ross & Piwoz, Kent, and Dadhich.

We agree with Kent and Dadhich that the findings of our study can only be generalized to resource-poor settings. We also agree with Ross & Piwoz that the results cannot be generalized to infants less than six weeks of age. Indeed we point out in the paper that our results are likely to be an underestimate of the overall protective effect of exclusive or predominant breastfeeding, since we only studied infants aged six weeks to six months, and since the analysis by the WHO Collaborative Study Team reported a higher protective effect for any breastfeeding during the first 2 months of life when compared with the effect among older infants (2).

The issue of the comparison of exclusive and predominant breastfeeding needs further clarification. As stated in our paper, the survival advantages of exclusive over predominant breastfeeding have not been well-studied. Even the studies of diarrhoeal morbidity referred to by Ross & Piwoz do not all include a comparison of exclusive and predominant breastfeeding (3-6).

Exclusive and predominant breastfeeding were both associated with substantially lower risk of mortality than partial or no breastfeeding in our study. Partially breastfed infants were 2.46 times (95% CI = 1.44–4.18) and non-breastfed infants 10.5 times (95% CI=5.0–22.0) more likely to die than predominantly breastfed infants (our largest group). When exclusive breastfeeding was compared with predominant breastfeeding, the point estimate for the risk of mortality was 1.46 in favour of predominant breastfeeding but the confidence interval was wide (0.75–2.86) because of the relatively small number of exclusively breastfed infants. We therefore concluded that, in terms of survival, the benefits of

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shifting infants six weeks to six months of age from predominant to exclusive breastfeeding were likely to be smaller than those that could be achieved by shifting the non-breastfed or partially breastfed infants to exclusive *or* predominant breastfeeding.

The programmatic implications of our findings merit consideration. Efforts to promote exclusive breastfeeding need to be accelerated for several reasons. First, we see this as the only way to achieve high rates of predominant or exclusive breastfeeding. Second, the benefits of exclusive breastfeeding may go beyond survival, including long-term effects on non-communicable disease morbidity. We do not therefore feel that the findings of our study suggest a need for change in current policy. However, although promoting exclusive breastfeeding, we feel that substantial benefits in infant survival can be expected even if only high rates of predominant breastfeeding are achieved. In addition, we recommend that when promoting exclusive breastfeeding for the general population of infants, much greater attention be paid to reducing the prevalence of infants who are not breastfed or are partially breastfed than focussing on excluding the occasional use of water

or infusions that are associated with predominant breastfeeding. ■

**Competing interests:** none declared.

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& Jose Martinez<sup>3</sup>**

1. Bahl R, Frost C, Kirkwood BR, Edmond K, Martinez J, Bhandari N, et al. Infant feeding patterns and risks of death and hospitalization in the first half of infancy: multicentre cohort study. *Bull World Health Organ* 2005;83:418-26.
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4. Morrow AL, Reves RR, West MS, Guerrero ML, Ruiz-Palacios GM, Pickering LK. Protection against infection with *Giardia lamblia* by breastfeeding in a cohort of Mexican infants. *J Pediatr* 1992;121:363-70.
5. Perera BJC, Ganesan S, Jayarasa J, Ranaweera S. The impact of breastfeeding practices on respiratory and diarrhoeal disease in infancy: A study from Sri Lanka. *J Trop Pediatr* 1999; 45:115-8.
6. Popkin BM, Adair L, Akin JS, Black R, Briscoe J, Flieger W. Breast-feeding and diarrheal morbidity. *Pediatrics* 1990;86:874-82.

### Call for papers — *Bulletin* theme issue on mortality estimates

In March 2006, a theme issue of the *Bulletin* will provide an update on the empirical basis and methods of estimating mortality. The issue will include examples of innovative tools and methods used to count the dead and determine how they died. The *Bulletin* welcomes papers for all its sections on the topics of mortality estimations, vital registration, and approaches to attribution of causes of death in the absence of either. The deadline for submissions is 1 December 2005.

### Corrigendum

In Vol. 83, issue number 10, 2005, page 753, Appendix 4 should have referred to Fig. 4.

On page 800 in the same issue, the authors' affiliations in the following *Letter* by George Davey Smith<sup>1</sup> and Matthias Eggar<sup>2</sup> should have read:

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