

## HIV, infant feeding and implementation failure: advancing policies for women with HIV infection and attaining the Millennium Development Goals

Coutsoudis et al.<sup>1</sup> offer a viewpoint on the WHO guidelines on HIV and infant feeding that suggests that the use of infant formula among HIV-positive women in the developing world is, to a large extent, currently untenable. The article has many valid arguments: it is well known that promotion of formula feeding among HIV-positive women within the context of inadequate community support, unreliable formula supply and contaminated drinking water can result in excess infant mortality.<sup>2</sup> However, empirical data exist that counter some of the authors' views. It has been demonstrated that formula feeding among HIV-positive women in a context with counselling support and education, access to clean water and uninterrupted availability of breast-milk substitutes can offset the risk of infant mortality. In Côte d'Ivoire, there were no differences in risks of diarrhoea, respiratory infection, malnutrition, hospitalization or death in breastfed versus formula-fed infants of HIV-positive women. The authors of this study suggest that offering safer conditions (clean water, free formula) and a more supportive environment (replacement feeding counselling and education) were elements that reduced the potential threat of mortality among formula-fed infants. These findings were sustained after a two-year follow-up period.<sup>3</sup>

With safe formula feeding, the vertical HIV transmission rate can be reduced to less than 2%; this is an attainable goal in a resource-limited setting as indicated by results from a preliminary study in Rwanda.<sup>4</sup> In addition to a low transmission rate, the mortality rate reported was modest (21 per 1000 person-years) among those infants enrolled at birth in the Inshuti Mu Buzima prevention of mother-to-child transmission programme in rural

Rwanda that were offered free formula, materials, education and support through community health workers.

Evidence from South Africa offers a more complex picture of infant feeding outcomes in the context of HIV. There, formula feeding demonstrated a protective effect on HIV transmission per death among those living in households with piped water (hazard ratio, HR: 0.51; 95% confidence interval, CI: 0.31–0.84). Among those who had piped water and fuel and who disclosed their HIV status, the protective effect of formula was greater (HR: 0.32; 95% CI: 0.16–0.62). However, among women who did not have piped water or fuel and did not disclose their HIV status, formula feeding conferred an increased risk of HIV transmission per death by 3.5 fold (HR: 3.45; 95% CI: 1.89–6.32).<sup>5</sup> These findings suggest that contextual factors are critical when considering the appropriate feeding option for HIV-positive women in resource-poor settings, indicating that in some settings the provision of formula would result in increased child mortality as Coutsoudis et al.<sup>1</sup> argue.

However, these findings also suggest that aggressive measures to improve water quality and access to other resources may reduce the risk of child mortality associated with provision of infant formula. In fact, improving access to potable water may be the most critical element in offering safe feeding alternatives to HIV-positive women with infants in developing countries and should not be considered an unattainable goal. One of the eight Millennium Development Goals (MDGs) is to "ensure environmental sustainability" (Goal 7) and one of the targets is to "reduce by half the proportion of people without sustainable access to safe drinking water".

Although addressing the global water crisis may not be immediate, as indicated by the MDGs, targets for improving access to potable water must be set and attained for the near future. One should not lose sight of the fact that progress has been made in the past 20 years: since 1990 approximately 1.6

billion people have gained access to safe drinking water. During this period, the child mortality rate for developing countries declined from 103 to 80 per 1000 live births, suggesting improvement with respect to MDG Goal 4 of reducing child mortality.<sup>6</sup> Therefore, despite the suggestion that "poverty is not easily or quickly reversed"<sup>1</sup>, a positive, goal-directed outlook can offer results more quickly.

If programmes reducing mother-to-child transmission of HIV through formula feeding are deemed not feasible in a large majority of settings throughout the developing world, thousands of infants will continue to die due to the presumed inability to offer access to clean drinking water and a safe environment for formula feeding. However, in settings where women are offered a safe and supportive environment, the potential for child mortality can be offset and the risk of HIV transmission can be dramatically reduced. The fight against HIV/AIDS can serve as an entry point to demonstrate to families in remote areas that access to clean water and reduction in HIV transmission as well as child mortality are attainable goals as we work collectively towards reaching the MDGs. ■

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## Formula-feeding is not a sustainable solution

We agree with the authors Binagwaho et al.<sup>1</sup> that sustainable access to safe drinking water is important and will go a long way to reducing the dangers associated with formula feeding. However, even if we meet the United Nations' Millennium Development Goal (MDG) of halving the proportion of people without sustainable access to safe drinking water by 2015, there will still remain some 600 million people without safe water.<sup>2</sup> According to current trends Sub-Saharan Africa, which bears the brunt of HIV, is estimated to only reach this MDG goal by 2040.<sup>2</sup> We submit, however, that even in situations where one does have access to clean water, there are inherent risks, such as pneumonia and diarrhoea, associated with the absence of breast milk, probably related in part to the role

that breast milk plays in stimulating maturation of the infant's innate gastrointestinal immunity.<sup>3</sup> These dangers are exacerbated in resource-poor settings resulting in the documented increase in mortality when young infants are not breastfed.<sup>4</sup> In HIV-prevalent settings, as we previously, and the authors now mention, there are indeed a few settings where formula feeding has been shown to reduce the potential threat of mortality among formula-fed infants. Of note is that the study quoted<sup>5</sup> and other similar studies all have shown equivalence in HIV-free survival. If breast- and formula-feeding (in these few settings) have similar outcomes in terms of HIV-free survival of infants, why would a developing country invest in a technology that comes at significant cost to public health budgets? In KwaZulu-Natal province, which has the highest HIV prevalence in South Africa, supply of formula has accounted for up to 50% of the provincial budget for prevention of mother-to-child transmission of HIV (PMCT). Would it not be more directly cost effective to invest in safe water for all? A major outbreak of diarrhoea that caused a spike in mortality, particularly among formula-fed infants, in Botswana (one of the wealthiest sub-Saharan African countries) illustrates the complexities of continuously providing an adequate formula supply and recognizes the inherent dangers of a contaminated water supply in a national PMCT programme.<sup>6</sup> This highlights the importance of following the latest UNAIDS/UNICEF/WHO guidelines (2007) of only using replacement feeding when it is "acceptable, feasible, affordable, sustainable and safe" – having clean water only satisfies one of these criteria.

We need to bear in mind that breast milk remains a very important food source in food-insecure households and we need to be more imaginative in looking for ways of preserving it while rendering it safe. A stark reminder of the need to preserve household food security comes from the 2009 Millennium Development Goals Report<sup>7</sup> where it is reported that the

current economic and food crises are endangering the recent gains that have been made in eradicating hunger and poverty. The threat of food insecurity is not only to the formula-fed newborn but also at 6 months and older when milk still constitutes a significant portion of the infant's food intake.

The issues on breastfeeding and HIV transmission are now "stale, flat and unprofitable" as there are proven interventions to simultaneously reduce HIV transmission, improve survival of infants and preserve the multiple benefits of breastfeeding. These interventions include: promotion and support of exclusive breastfeeding during the first 6 months;<sup>8</sup> maternal highly active antiretroviral therapy (HAART) and infant antiretroviral prophylaxis;<sup>9</sup> and the use of a simple home-based method of flash heating breast milk which destroys the HIV virus while maintaining the majority of nutritional and immunological properties of breastmilk.<sup>10</sup>

The search for sustainable solutions that also implement sensible emergency measures, supersedes short-term answers such as formula-feeding. In emergencies, the use of formula is neither a sustainable solution nor a sensible immediate option. ■

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