

How applicable are the 2010 WHO guidelines for infant feeding in the context of HIV in low-income countries?

February 2011

This rapid response was prepared by the Uganda country node of the Regional East African Community Health (REACH) Policy Initiative.

Key messages

- The principles and recommendations released by the World Health Organization in 2010 for infant feeding in the context of HIV are generally consistent with those from 2006
- The 2010 guidelines recommend that each country should decide which infant feeding practice will be *primarily* promoted and supported by Maternal and Child Health services. The options are *either* breastfeeding with an antiretroviral intervention to reduce transmission, *or* the avoidance of all breastfeeding



MAKERERE UNIVERSITY
COLLEGE OF HEALTH SCIENCES



Who requested this rapid response?

This document was prepared in response to a specific question from a Senior Health policymaker in Uganda.

! This rapid response includes:

- **Summary of research findings**, based on one or more systematic reviews of research on this topic
- **Relevance** for low and middle income countries

X Not included:

- Recommendations
- Cost assessments
- Results from qualitative studies
- Examples or detailed descriptions of implementation

What is the SURE Rapid Response Service?

SURE Rapid Responses address the needs of policymakers and managers for research evidence that has been appraised and contextualised in a matter of hours or days, if it is going to be of value to them. The Responses address questions about arrangements for organising, financing and governing health systems, and strategies for implementing changes.

What is SURE?

SURE – Supporting the Use of Research Evidence (SURE) for policy in African health systems - is a collaborative project that builds on and supports the Evidence-Informed Policy Network (**EVIPNet**) in Africa and the Regional East African Community Health (**REACH**) Policy Initiative (see back page). SURE is funded by the European Commission's 7th Framework Programme.

www.evipnet.org/sure

Glossary

of terms used in this report:

www.evipnet.org/sure/rr/glossary

- **Where antiretroviral therapy is available**, mothers known to be HIV-infected are recommended to breastfeed until their child is 12 months old
- Replacement feeding should not be used unless certain conditions are met, such as the availability of assured safe water and sanitation at the household and community level

Background

Mother-to-child transmission (MTCT) of HIV is the primary way in which children are infected with HIV and can occur when a child is still in the uterus, at birth, or through breastfeeding (1). Studies conducted in sub-Saharan Africa have shown that breastfeeding contributes substantially (up to 42%) of the total number of MTCTs (2). Levels of transmission increase as the duration of breastfeeding increases (from 1.6% at 3 months of age to 9.3% at 18 months). Other characteristics may also affect transmission levels including the [type and quality?] of breast milk, [and the health?] of the mother and infant.

Significant progress has been made in preventing mother-to-child transmission of HIV before and around birth. In addition, in many resource-rich settings, mothers with HIV are counselled not to breastfeed their children: instead they are advised on feasible and affordable alternatives. However, in parts of the developing world where the majority of mothers with HIV live, the complete avoidance of breastfeeding may not be feasible or possible if, for example, parents are unable to afford replacement feeding.

How this Response was prepared

After clarifying the question being asked, we searched for systematic reviews, local or national evidence from Uganda, and other relevant research. The methods used by the SURE Rapid Response Service to find, select and assess research evidence are described here:

www.evipnet.org/sure/rr/methods

What the quality of evidence (GRADE) means

The quality of the evidence is a judgement about the extent to which we can be confident that the findings of the research are correct. These judgements are made using the GRADE framework, and are provided for each outcome. The judgements are based on the type of study design (randomised trials versus observational studies), the risk of bias, the consistency of the results across studies, and the precision of the overall findings across studies. For each outcome, the quality of the evidence is rated as high, moderate, low or very low using the definitions below.

⊕⊕⊕⊕

High: We are confident that the true effect lies close to what was found in the research.

⊕⊕⊕○

Moderate: The true effect is likely to be close to what was found, but there is a possibility that it is substantially different.

⊕⊕○○

Low: The true effect may be substantially different from what was found.

⊕○○○

Very low: We are very uncertain about the effect.

For more information about GRADE:

www.evipnet.org/sure

The guidelines

The principles and recommendations released by the World Health Organization in 2010 for infant feeding in the context of HIV, are generally consistent with those released in 2006. In the latter, the WHO recommended that all HIV-infected mothers should receive counselling, including the provision of general information about the risks and benefits of various infant feeding options, and specific guidance in selecting the feeding option most likely to be suitable to their individual situation. It also called for mothers to be supported in their choices regarding infant feeding (3). However, the guidelines released in 2010 recognised the contribution of recent evidence about the effects of anti-retroviral therapy during the breastfeeding period (4). Consequently, the WHO now recommends that each country should decide which infant feeding practice will be primarily promoted and supported by Maternal and Child Health services. These options are *either* breastfeeding with an antiretroviral intervention to reduce transmission, *or* the avoidance of breastfeeding altogether. (In previous recommendations, health workers were expected to individually counsel all HIV-infected mothers about the various infant feeding options, and mothers then made the final choice themselves).

Where antiretroviral therapy is available, mothers known to be HIV-infected are recommended to breastfeed until their child is 12 months old. The suggestion that replacement feeding should not be used unless it is acceptable, feasible, affordable, sustainable and safe (AFASS) is still recommended. The 2010 guidelines also give guidance on situations such as what care should be provided in the absence of ARVs, recognising that such drugs may not be available everywhere immediately.

Summary of the evidence for the guidelines

Breastfeeding is advantageous for a number of reasons: it significantly decreases infant morbidity and mortality by providing optimal nutrition, and provides protection against common childhood gastrointestinal and respiratory tract infections (5). It is particularly important in resource-limited settings, such as Uganda, where many mothers cannot afford the costs of formula feeds or other breast milk substitutes. In many settings, access to clean water may also be limited, thus increasing the risk of diarrhoea if replacement feeding is used. However, there is a risk that HIV can be transmitted through human milk during breastfeeding. This presents health workers with a dilemma: the use of replacement feeding, while protecting an infant against HIV infection, could place the same infant at risk of morbidity and mortality from other infections.

This dilemma is complicated further by cultural and social factors. In the developing world, for example, including some regions in Uganda, mothers opting not to breastfeed their children may be stigmatised if people assume the mothers are HIV-positive. This, in turn, may potentially compromise adherence to replacement-feeding regimens (6). But even in contexts where HIV-associated stigmatisation does not occur, exclusive breastfeeding may be difficult for mothers especially if they have responsibilities that take them away from their children during the day. Many mothers in Uganda, for example, have day jobs in both the formal and informal sectors; a child may therefore be forced to receive mixed breast milk feedings, or alternative feeding options, while its mother is away. When choosing which method to promote in their countries, Maternal and Child health authorities therefore need to pay close attention to issues of everyday living and how these affect the practicability of the option available and to how these burdens on the affected population can be eased.

Three interventions have been identified in response to the mother-to-child-transmission of HIV through breastfeeding. The WHO's new guidelines emphasise the first and last of these, and have incorporated the second option within the third. The options are:

- The complete avoidance of breastfeeding
- Exclusive breastfeeding
- The provision of antiretroviral prophylaxis to breastfeeding infants

Complete avoidance of breastfeeding

The complete avoidance of breastfeeding is the most obvious intervention to prevent HIV transmission through breast milk (5). However, this decision, if recommended, should be made only after considering the following pertinent issues (4):

- The socio-economic and cultural contexts of the populations served by maternal and child health services
- The availability and quality of health services
- Local epidemiological circumstances, including HIV prevalence among pregnant women
- The main causes of maternal and child under-nutrition and infant and child mortality
- International recommendations

A systematic review done to collate and assess the evidence regarding interventions to decrease late postnatal mother-to-child-transmission of HIV, and to determine the efficacy of such interventions in decreasing late postnatal mother-to-child-transmission of HIV, found that the complete avoidance of breastfeeding is efficacious in preventing mother-to-child-transmission of HIV. However, this intervention has significant associated morbidity, such as diarrhoeal morbidity, if formula is prepared without clean water (5).

Morbidity associated with the complete avoidance of breastfeeding, in addition to the cost of purchasing formula or other replacement milk, together with the stigma associated with not breastfeeding, are significant. In many contexts, the use of this intervention would therefore be impossible: many mothers may opt instead for breastfeeding their infants despite the risks involved.

Exclusive breastfeeding and antiretroviral prophylaxis to the breastfeeding infant

In the event that breastfeeding is initiated, two interventions have been found to be efficacious in preventing HIV transmission, namely exclusive breastfeeding and extended anti-retroviral prophylaxis. The systematic review done to collate and assess the evidence regarding interventions to decrease late postnatal mother-to-child-transmission of HIV found that breastfed children who also received solids had higher rates of mother-to-child-transmission of HIV as well as higher three-month mortality rates when compared to those exclusively breastfed (5).

Another systematic review was done to determine whether, and to what extent, antiretroviral regimens aimed at decreasing the risk of mother-to-child transmission of HIV infection achieve a clinically useful decrease in transmission risk, and what effect these interventions have on maternal and infant mortality and morbidity (7). The authors concluded that short courses of antiretroviral drugs are effective for reducing mother-to-child transmission of HIV and are not associated with any safety concerns in the short-term. Some of the evidence from this systematic review is presented in the tables below.

Table 1:

Anti-retrovirals versus Placebo

Patients or population: HIV-positive breastfeeding mothers and their infants

Settings: Thailand, South Africa, Cote d'Ivoire, Burkina Faso

Intervention: Antiretroviral therapy

Comparison: Placebo

Interventions	Impact	Number of studies	Quality of the evidence (GRADE)
ZDV given to mothers from 36-38 weeks gestation, during labour and for 7 days after delivery, with no treatment to infants	<ul style="list-style-type: none"> Significantly reduced HIV infection at all time intervals* by 30-35% 	3	⊕⊕⊕○ Moderate
ZDV given to mothers from 36 weeks' gestation and in labour but not to babies	<ul style="list-style-type: none"> Significantly reduced HIV infection at 4-8 weeks and 3-4 months 44% and 37% respectively 		
A combination of ZDV and 3TC given to mothers at 36 weeks' gestation through labour and continued for 7 days after delivery, and for first 7 days to the infant	<ul style="list-style-type: none"> Significantly reduced HIV infection and HIV infection or death at 4-8 weeks by 63% and 61% respectively 		
A combination of ZDV and 3TC given to mothers from the start of labour until 7 days after delivery, and for first 7 days to the infant	<ul style="list-style-type: none"> Significantly reduced HIV infection by 42% and HIV infection and death by 36% at 4-8 months 		
A combination of ZDV and 3TC given to mothers during labour only with no treatment to the infant	<ul style="list-style-type: none"> Did not reduce the risk of HIV infection at 4-8 weeks or 18 months 		

GRADE: GRADE Working Group grades of evidence (see bar on the right on page 2)

***Time intervals considered included: 4-8weeks, 3-4months, 6, 12, 18months**

Longer versus shorter treatment

Patients or population: HIV-positive breastfeeding mothers and their infants

Settings: Thailand, South Africa, Cote d'Ivoire, Burkina Faso

Intervention: Longer treatment (ZDV given to mothers from 36 weeks and during labour)

Comparison: Shorter treatment (ZDV given to mothers during labour and to their babies for the first 3 days of life)

Outcomes	Impact	Number of trials	Quality of the evidence (GRADE)
HIV infection rates at birth, 4-8 weeks, 3-4 months, 6 months, 12 months	HIV infection rates were not significantly different in both groups at all the time intervals	1	⊕⊕⊕○ Moderate

GRADE: GRADE Working Group grades of evidence (see bar on the right on page 2)

Anti-retroviral regimens using different drugs and durations of treatment

Patients or population: HIV-positive breastfeeding mothers and their infants

Settings: Thailand, South Africa, Cote d'Ivoire, Burkina Faso

Intervention and comparison: Different drug regimens

Outcomes	Impact	Number of studies	Quality of the evidence (GRADE)
<p>A single dose of NVP given to mothers at the onset of labour plus a single dose of NVP given to their babies immediately after birth compared with ZDV given to mothers during labour and to their babies for a week after birth</p>	<ul style="list-style-type: none"> • Lower HIV infection rates at 4-8 weeks, 3-4 months, 12 months and 18 months by 36-41% <p>In addition, the NVP regimen significantly reduced the risk of HIV infection or death at 4-8 weeks, 3- 4 months, 12 months and 18 months by 32-42%</p>	3	<p>⊕⊕⊕○ Moderate</p>
<p>A single dose of NVP given to mothers at the onset of labour plus a single dose of NVP given to their babies immediately after birth plus ZDV given to babies for 1 week after birth compared with a single dose of NVP given to mothers at the onset of labour plus a single dose of NVP given to their babies immediately after birth alone</p>	<ul style="list-style-type: none"> • No difference in HIV infection at 4- 8 weeks 		
<p>A single dose of NVP given to babies immediately after birth plus ZDV given to babies for 1 week after birth compared with a single dose of NVP given to babies only</p>	<ul style="list-style-type: none"> • Significantly reduced the HIV infection rate at 4-8 weeks by about 37% 		

GRADE: GRADE Working Group grades of evidence (see bar on the right on page 2)

Conclusion

The WHO's 2010 principles and recommendations do not differ greatly from the previous ones issued in 2006 and are applicable to low-income countries in which most HIV-infected mothers and infants live. The scenarios and conditions considered in these guidelines are a reality in many low-income countries and feeding choices may be a predicament for mothers in such settings. Importantly, the guidelines are flexible enough to apply to very different circumstances: they are equally applicable to those able to avoiding breastfeeding altogether or able to afford supplementation with formula feeds, as to those who choose to breastfeed but are able to access antiretroviral therapy. These guidelines, therefore, are relevant to all populations regardless of their socio-economic circumstances.

References

1. Read JS. Prevention of mother-to-child transmission of HIV. In: Zeichner SL, Read JS, editors. *Textbook of Pediatric HIV Care*. Cambridge, England: Cambridge University Press; 2005.
2. Breastfeeding and HIV International Transmission Study Group. Late postnatal transmission of HIV-1 in breast-fed children: An individual patient data meta-analysis. *J Infect Dis*. 2004;189:2154–66.
3. WHO HIV, Infant Feeding Technical Consultation held on behalf of the Inter-agency Task Team (IATT) on Prevention of HIV Infections in Pregnant Women, Mothers, their Infants. Geneva; October 25–27, 2006.
4. WHO. Guidelines on HIV and infant feeding. 2010. Principles and recommendations for infant feeding in the context of HIV and a summary of evidence. 2010 [cited 2011; Available from: http://whqlibdoc.who.int/publications/2010/9789241599535_eng.pdf
5. Tara Horvath, Banyana C Madi, Irene M Iuppa, Gail E Kennedy, George W Rutherford, Jennifer S. Read. Interventions for preventing late postnatal mother-to-child transmission of HIV. *Cochrane Database of Systematic Reviews* 2009, Issue 1 Art No: CD006734 DOI: 101002/14651858CD006734pub2.
6. Rankin W, Brennan S, Schell E, et al. The Stigma of Being HIVPositive in Africa. *PLoS Medicine* August 2005;2(8):247–9.
7. Volmink J, Siegfried N, van der Merwe L, Brocklehurst P. Antiretrovirals for reducing the risk of mother-tochild transmission of HIV infection. *Cochrane Database of Systematic Reviews* 2007, Issue 1 Art No: CD003510 DOI: 101002/14651858CD003510pub2.

This summary was prepared by

Dr. Rhona Mijumbi, Supporting Use of Research Evidence for Policy (SURE Project), Office of the Principal, College of Health Sciences, Makerere University, New Mulago Hospital Complex, Administration Building, 2nd Floor, P.O Box 7072, Kampala, Uganda

Conflicts of interest

None known.

This Rapid Response should be cited as

Rhona Mijumbi, *MPH, MSc*. How applicable are the 2010 WHO guidelines for infant feeding in the context of HIV in low income countries like Uganda? February 2011

For more information contact

Dr. Rhona Mijumbi, mijumbi@yahoo.com

The **Regional East African Community Health-Policy Initiative (REACH)** links health researchers with policy-makers and other vital research-users. It supports, stimulates and harmonizes evidence-informed policymaking processes in East Africa. There are designated Country Nodes within each of the five EAC Partner States.

www.eac.int/health

The **Evidence-Informed Policy Network (EVIPNet)** promotes the use of health research in policymaking. Focusing on low- and middle-income countries, EVIPNet promotes partnerships at the country level between policymakers, researchers and civil society in order to facilitate policy development and implementation through the use of the best scientific evidence available.

www.evipnet.org