HIV and infant feeding

Guidelines for decision-makers

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WHO Library Cataloguing-in-Publication Data

HIV and infant feeding – Rev. ed.

2 v.

Contents: Guidelines for decision-makers – A guide for health care managers and supervisors.

1.Breast feeding 2.Infant nutrition 3.HIV infections - transmission 4.Disease transmission, Vertical - prevention and control 5.Decision making 6.Practice guidelines I.World Health Organization II.UNICEF III.United Nations Population Fund IV.UNAIDS.

ISBN 92 4 159122 6 (NLM classification: WC 503.2)
92 4 159123 4

Designed by minimum graphics
Printed in China

Abbreviations

AIDS	Acquired immunodeficiency syndrome
ANC	Antenatal care
ARV	Anti-retroviral
BFHI	Baby-friendly Hospital Initiative
HIV	Human immunodeficiency virus
IBFAN	International Baby Food Action Network
IYCF	Infant and young child feeding
IMCI	Integrated management of childhood illness
MCH	Maternal and child health
MTCT	Mother-to-child transmission of HIV
NGO	Nongovernmental organization
PLWHAs	People living with HIV/AIDS
STI	Sexually transmitted infection
WHA	World Health Assembly

Explanation of terms

Acquired immunodeficiency syndrome (AIDS): the active pathological condition that follows the earlier, non-symptomatic state of being HIV-positive.

Artificial feeding: feeding with breast-milk substitutes.

Bottle-feeding: feeding from a bottle, whatever its content, which may be expressed breast milk, water, infant formula, or another food or liquid.

Breast-milk substitute: any food being marketed or otherwise represented as a partial or total replacement for breast milk, whether or not suitable for that purpose.

Cessation of breastfeeding: completely stopping breastfeeding, including suckling.

Commercial infant formula: a breast-milk substitute formulated industrially in accordance with applicable Codex Alimentarius standards to satisfy the nutritional requirements of infants during the first months of life up to the introduction of complementary foods.

Complementary feeding: the child receives both breast milk or a breast-milk substitute and solid (or semi-solid) food.

Complementary food: any food, whether manufactured or locally prepared, used as a complement to breast milk or to a breast-milk substitute.

Cup-feeding: being fed from or drinking from an open cup, irrespective of its content.

Exclusive breastfeeding: an infant receives only breast milk and no other liquids or solids, not even water, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines.

Human immunodeficiency virus (HIV): the virus that causes AIDS. In this document, the term HIV means HIV-1. Mother-to-child transmission of HIV-2 is rare.

HIV-negative: refers to people who have taken an HIV test and who know that they tested negative, or to young children who have tested negative and whose parents or guardians know the result.

HIV-positive: refers to people who have taken an HIV test and who know that they tested positive, or to young children who have tested positive and whose parents or guardians know the result.

HIV status unknown: refers to people who either have not taken an HIV test or do not know the result of a test they have taken.

HIV-infected: refers to people who are infected with HIV, whether or not they are aware of it.

HIV testing and counselling: testing for HIV status, preceded and followed by counselling. Testing should be voluntary and confidential, with fully informed consent. The expression encompasses the following terms: *counselling and voluntary testing, voluntary counselling and testing, and voluntary and confidential counselling and testing.* Counselling is a process, not a one-off event: for the HIV-positive client it should include life planning, and, if the client is pregnant or has recently given birth, it should include infant-feeding considerations.

Home-modified animal milk: a breast-milk substitute prepared at home from fresh or processed animal milk, suitably diluted with water and with the addition of sugar and micronutrients.

Infant: a person from birth to 12 months of age.

Infant feeding counselling: counselling on breastfeeding, on complementary feeding, and, for HIV-positive women, on HIV and infant feeding.

Mixed feeding: feeding both breast milk and other foods or liquids.

Mother-to-child transmission: transmission of HIV to a child from an HIV-infected woman during pregnancy, delivery or breastfeeding. The term is used in this document because the immediate source of the child's HIV infection is the mother. Use of the term *mother-to-child transmission* implies no blame,

whether or not a woman is aware of her own infection status. A woman can contract HIV infection from unprotected sex with an infected partner, from receiving contaminated blood, from non-sterile instruments (as in the case of injecting drug users), or from contaminated medical procedures.

Programme: an organized set of activities designed to prevent transmission of HIV from mothers to their infants or young children.

Replacement feeding: feeding infants who are receiving no breast milk with a diet that provides the nutrients infants need until the age at which they can be fully fed on family foods. During the first six months of life, replacement feeding should be with a suitable breast-milk substitute. After six months the suitable breast-milk substitute should be complemented with other foods.

'Spillover': a term used to designate the feeding behaviour of new mothers who either know that they are HIV-negative or are unaware of their HIV status – they do not breastfeed, or they breastfeed for a short time only, or they mix-feed, because of unfounded fears about HIV or of misinformation or of the ready availability of breast-milk substitutes.

Preface

The guidelines presented here are a revision of guidelines originally published, under the same title,[1] in 1998. They have been revised to take account of new scientific and epidemiological information. The main changes are to:

- incorporate recommendations from a WHO Technical Consultation on prevention of mother-to-child transmission of HIV, held in October 2000[2]
- take account of the Global Strategy for Infant and Young Child Feeding[3] jointly developed by WHO and UNICEF
- list the actions recommended in the HIV and Infant Feeding Framework for Priority Action[4]
- incorporate programmatic experience since 1998
- give more guidance for countries considering providing free or subsidized infant formula
- reduce the volume of information on prevention of HIV infection in infants and young children in general
- include new research findings.

[1] WHO/UNICEF/UNAIDS. *HIV and Infant Feeding: Guidelines for Decision-makers*. WHO/FRH/NUT/CHD/98.1, UNAIDS/98.3, UNICEF/PD/NUT/(J)98-1. Geneva, June 1998.

[2] WHO. New data on the prevention of mother-to-child transmission of HIV and their policy implications. Conclusions and recommendations. WHO technical consultation on behalf of the UNFPA/UNICEF/WHO/UNAIDS Inter-Agency Task Team on Mother-to-Child Transmission of HIV. Geneva, 11–13 October 2000. Geneva, World Health Organization 2001, WHO/RHR/01.28.

[3] WHO. Global strategy for infant and young child feeding. WHA55/2002/REC/1, Annex 2, http://www.who.int/child-adolescent-health.

[4] WHO, UNICEF, UNFPA, UNAIDS, World Bank, UNHCR, WFP, FAO and IAEA. HIV and Infant Feeding: Framework for Priority Action. Geneva, 2003.

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Executive Summary

The purpose of this publication is to provide guidance to decision-makers on issues that need to be considered in relation to infant and young child feeding in the context of HIV, and to highlight areas of special concern on which policy decisions need to be made locally.

These guidelines begin with a list of key steps and questions to guide decision-makers through the process of thinking about and deciding on relevant points, with references to specific sections of the publication where applicable.

The section on the context describes the aims and content of the publication, and sets out background on international policy, goals and guidelines that decision-makers should consider when developing specific country approaches to infant and young child feeding in the context of HIV. The goals include those adopted by the recent UN General Assembly Special Sessions for Children and on HIV/AIDS, and those that are part of the UN approach to prevention of HIV infection in pregnant women, mothers and their children; the Global Strategy on Infant and Young Child Feeding; and the HIV and Infant Feeding Framework for Priority Action. This section stresses the importance of primary prevention in women as an essential basis for action, and gives a human rights perspective on the issue.

The next section considers the need to balance the risk of HIV transmission through breastfeeding with the risk of malnutrition and death from not breastfeeding. It includes the current recommendations for HIV-positive women, and describes their and their babies' infant-feeding options.

The section on policy describes the process of developing or revising a national policy on infant and young child feeding in the context of HIV. It lists information to be taken into account in carrying out a situation assessment or formative research on which to base policy and guidelines, and also on establishing the cost of interventions.

The next section describes the continuing importance of the International Code of Marketing of Breast-milk Substitutes and subsequent relevant World Health Assembly resolutions, how to strengthen its implementation in the context of HIV, and considerations that governments should take into account when contemplating the distribution and procurement of free or subsidized commercial infant formula.

Exclusive breastfeeding for the first six months of life and nutritionally adequate and safe complementary feeding thereafter with continued breastfeeding up to two years of age or beyond need to be protected, promoted and supported in the general population; this is crucial in countries with high rates of HIV prevalence. Critical areas for decision-makers described in this section include developing capacity for counselling and support for infant feeding, integrating counselling into antenatal care services, ensuring that Baby-friendly Hospital Initiative goals are met and sustained, and establishing mechanisms for coordinating infant and young child feeding activities.

Before an infant-feeding counselling service is instituted, HIV testing and counselling should be accessible to women, especially to pregnant women. Once they know their status, HIV-positive women should be offered integrated counselling by trained counsellors and be provided with a package of services. Community information and support should also be ensured. The section on supporting HIV-positive women in their infant-feeding decisions describes how decision-makers can plan for these services.

The final section provides decision-makers with background on the information that should be monitored in order to ensure good-quality efforts in relation to HIV and infant feeding, describes the formative research that should be carried out, and sets out some ideas on sharing information.

Key steps and issues for decision-makers

Has a situation assessment and analysis on infant and young child feeding in the context of HIV been completed on which to base policy, strategy and guidelines?

No Carry out assessment and analysis (section 3.2 and Annex 1)

Yes Update the assessment as necessary over the course of the programme

Use information as a baseline for national policy (section 3.1) and for monitoring and evaluation (section 7)

On infant and young child feeding, is there a national policy that incorporates HIV and infant feeding?

No Develop policy (section 3.1), incorporating information from the situation assessment and analysis (section 3.2)

Yes Review policy for consistency with other relevant policies (section 3.1)

Generate support for the policy (section 3.1)

Have costs of implementing the policy been estimated and allocated?

No Obtain cost estimates, prepare a budget and mobilize resources as necessary (section 3.3)

Yes Update costs, implement procedures for monitoring allocation, and adjust allocation, as necessary

Has the International Code of Marketing of Breast-milk Substitutes been adopted (see section 4.1 on continued importance of the Code[1] in the context of HIV/AIDS)?

No Adopt the Code

Seek technical assistance from UNICEF, WHO or the International Baby Food Action Network (IBFAN), if necessary (section 4)

Yes Implement or monitor the national Code, as indicated (sections 4.1 and 4.2)

Are current HIV primary-prevention activities aimed at women of reproductive age, especially pregnant and breastfeeding women?

No Take necessary measures (see Box 1)

Yes Monitor implementation

Is there a programme directed at the population in general to promote and support optimal breastfeeding?

No Review current breastfeeding activities, and plan for action to accelerate them

Yes Monitor breastfeeding rates in the general population

Is there clear direction on integration of counselling on HIV and infant feeding and related issues into relevant services, including direction on staffing?

No Prepare and disseminate integration guidelines based on policy (sections 5.6 and 6.2)

Yes Assess implementation of guidelines

Are necessary training and materials available for health workers and counsellors?

No Assign responsibilities and plan implementation (sections 5.3 and 6.3)

Yes Assess training and develop a system to support health workers and counsellors (sections 6.4 and 7)

Are all mothers, whatever their HIV status, counselled on infant feeding?

No Find out why not and take corrective action

Yes Support health workers and monitor quality of counselling (sections 6.4 and 7)

Has a minimum package of care and support for HIV-positive women, their infants and families been established and communicated to relevant parties?

No Determine what would be suitable and feasible (section 6.6), and establish the package of care and support

Yes Periodically review the suitability of the package and monitor its implementation and impact

Is there a plan of action for communication with communities and for development of their capacity in relation to infant and young child feeding, and are activities being implemented?

No Assign responsibilities for development and implementation (sections 6.7 and 6.8)

Yes Monitor implementation and impact

Are programmes being regularly monitored?

No Establish a monitoring plan or review it, and revise or reassign responsibilities as necessary (section 7)

Yes Ensure dissemination and feedback of information collected (section 7)

[1] Unless otherwise indicated, wherever this document mentions International Code of Marketing of Breast-milk Substitutes (referred to in this document also as the "International Code" or the "Code"), it also refers to subsequent relevant World Health Assembly (WHA) resolutions.

1. Context

Breastfeeding is normally the best way to feed an infant. A woman infected with human immunodeficiency virus (HIV), however, can transmit the virus to her child during pregnancy, labour or delivery, or through breastfeeding. It is a public health responsibility to prevent HIV infection in infants and young children – especially in countries with high rates of HIV infection among pregnant women, and it is also a public health responsibility to support optimal breastfeeding to prevent mortality and illness due to diarrhoea and respiratory infections. Acquired immunodeficiency syndrome (AIDS) has increased the mortality of children under five years of age in high-prevalence areas, both through direct infection and because of the reduced levels of care that a family living with HIV can provide. Although only part of this increase in mortality is the result of HIV infection through breastfeeding, countries need urgently to develop and implement sound public health policies on infant and young child feeding, including the effects of HIV.

This section describes the aims and content of the rest of this document, and sets out background on international policy, goals and guidelines that decision-makers should consider when developing specific country approaches to infant and young child feeding in the context of HIV.

1.1 Aim and content of these Guidelines

Countries are at different stages of the HIV/AIDS pandemic and of their response to it, and have varying levels of resources at their disposal. These guidelines do not recommend specific policies. Their aim is, rather, to provide guidance on issues that need to be considered, to give background information and to highlight areas of special concern on which policy decisions are needed. The overall objective of any actions resulting from the guidelines should be to increase child survival by promoting appropriate feeding practices for infants and young children, while at the same time minimizing HIV transmission through breastfeeding. The guidelines have been developed within the scope of the Global Strategy on Infant and Young Child Feeding (see 1.4) and the HIV and Infant Feeding Framework for Priority Action (see 1.5), and are based on relevant literature and experience from the field.

Further planning and management details and technical information are contained in two other documents: *HIV and Infant Feeding: A review of HIV transmission through breastfeeding*,[1] and *HIV and Infant Feeding: A guide for health-care managers and supervisors*.[2]

This document:

- summarizes knowledge of HIV transmission through breastfeeding
- identifies and discusses issues for decision-makers to address in developing or revising a comprehensive policy on infant and young child feeding
- explains in relation to HIV the continued relevance of the International Code of Marketing of Breast-milk Substitutes and subsequent relevant World Health Assembly resolutions
- outlines the actions to be taken to:
  - protect, promote and support appropriate infant and young child feeding practices for all women in relation to HIV
  - support HIV-positive women in their feeding decisions
- highlights key issues in monitoring and evaluation, as well as in research
- lists useful reference materials and resources (see Annex 1).

[1] WHO/UNICEF/UNFPA/UNAIDS. *HIV and Infant Feeding: A review of HIV transmission through breastfeeding*. Geneva, revised 2004.

[2] WHO/UNICEF/UNFPA/UNAIDS. *HIV and Infant Feeding: A Guide for health-care managers and supervisors*. Geneva, revised, 2003.

1.2 International goals and strategies related to prevention of HIV infection in infants and young children

The United Nations General Assembly Special Session for Children set a goal of reduction in the mortality rate of infants and under-fives by at least one-third by 2010. The Declaration of Commitment from the UN General Assembly Special Session on HIV/AIDS also set a goal to: "By 2005, reduce the proportion of infants infected with HIV by 20 per cent, and by 50 per cent by 2010". To achieve these goals, prevention of HIV infection in pregnant women, mothers and their children, including infection by transmission to young children during breastfeeding, should be part of a comprehensive approach both to HIV prevention and care for women and children and to maternal and child reproductive health services. Measures to improve infant and young child feeding will also be needed.

The UN strategy for the prevention of HIV transmission in pregnant women, mothers and their children indicates the need to consider action in the following areas, which form a four-prong comprehensive approach: 1) prevention of HIV infection in general, especially in young women and pregnant women (see Box 1 on primary prevention); 2) prevention of unintended pregnancies among HIV-infected women; 3) prevention of HIV transmission from HIV-infected women to their infants; and 4) provision of care, treatment and support to HIV-infected women, their infants and families. This approach highlights the critical role of the mother as the caregiver for her young children, as child survival is closely linked to the mother's survival and well-being.

Programmes for prevention of HIV infection in infants and young children, including infection through breastfeeding, directed primarily at area 3), may encompass a variety of components, but generally include: the incorporation of HIV testing and counselling[1] into routine antenatal care (ANC); ensuring that ANC includes detection and treatment of sexually transmitted infections (STIs) and counselling on safer sex; the provision of prophylactic antiretroviral drugs to HIV-positive pregnant women and, in some regimens, to their babies; safer obstetric practices; counselling and support for informed decisions on feeding, including *inter alia* the adoption of replacement feeding by HIV-positive women when it is acceptable, feasible, affordable, sustainable and safe for them and their babies; promotion of exclusive breastfeeding in HIV-negative women and women of unknown HIV status; and follow-up care and support to HIV-positive women, their infants and families.

BOX 1

Primary prevention of HIV infection in women

- Educate the general public on avoiding HIV infection.
- Promote safer and responsible sexual behaviour and practices, including as appropriate, delaying the onset of sexual activity, practising abstinence, reducing the number of sexual partners, and using condoms.
- Develop policies and programmes to reduce the vulnerability of girls and women to HIV infection, especially their social and economic vulnerability, through improving their status in society.
- Target the adolescent population for education on safer and responsible sexual behaviour.
- Ensure that couples have access to condoms.
- Provide information to men and women about HIV infection in infants and young children, the need to avoid infection, and the advisability of practising safer sex during pregnancy and after giving birth. Communication strategies and related activities need to address cultural and social factors that condone risky male sexual behaviour during the woman's pregnancy and the early months after childbirth.
- Provide timely diagnosis of STI and care for STI patients, including treatment of sexual partners, since STIs increase the risk of HIV transmission.
- Make HIV testing and counselling widely available.
- Ensure that medical and surgical procedures are performed with properly sterilized instruments, and ensure safe blood-transfusion services.
- Work with vulnerable populations, such as injecting drug users.
- Provide suitable counselling for HIV-negative women.

[1] This guide uses, throughout, the terminology adopted at a WHO-convened meeting: "HIV testing and counselling", which incorporates the concepts of voluntary HIV testing and counselling, and voluntary and confidential HIV testing and counselling.

1.3 UN policy development on prevention of HIV infection through breastfeeding

On behalf of the Inter-Agency Task Team on prevention of HIV transmission to pregnant women, mothers and their children, WHO convened in October 2000 a Technical Consultation on new data on the prevention of mother-to-child transmission (MTCT) (see Box 2 below, on this term) and related policy implications (Annex 2). Its objective was to review recent scientific data and update recommendations on the safety and efficacy of anti-retroviral (ARV) prophylaxis and infant feeding. The results amplified the recommendations contained in the 1997 WHO, UNICEF and UNAIDS Joint Policy Statement on HIV and Infant Feeding. That statement reiterated the substantial benefits that breastfeeding provides in the general population and at the same time promoted informed choice of infant-feeding methods by HIV-positive women (see Box 3 on human rights considerations underlying this policy). (For current feeding recommendations, see section 2.3.)

BOX 2

The term 'mother-to-child transmission' (MTCT)

For the sake of clarity, the term MTCT has been used in some places in this document. Other terms have been proposed but not generally adopted. MTCT means that the immediate source of the child's infection lies with the mother – whether infection occurs in the uterus, in the birth-canal during delivery, or through breastfeeding, usually by the mother.

Use of this term is not meant to attach blame or stigma to the woman who gives birth to an HIV-infected child. It does not suggest deliberate transmission by the mother, who is often unaware of her own infection status or uninformed about the transmission risk to infants. Nor should its use obscure the fact that, more often than not, HIV is introduced into a family by the woman's sexual partner.

The terminology of UN goals (see section 1.2) is *prevention of HIV transmission in pregnant women, mothers and their children*, which reflects the four-pronged comprehensive approach endorsed by the UN system, including primary prevention. Prong 3 is generally considered synonymous with prevention of mother-to-child transmission.

1.4 Global Strategy on Infant and Young Child Feeding

Since the Technical Consultation in October 2000, the World Health Assembly (WHA) has adopted a Global Strategy for Infant and Young Child Feeding (IYCF) (Annex 3) and UNICEF's Executive Board has endorsed it. The Global Strategy lays down that the optimal feeding pattern for survival in the general population is exclusive breastfeeding for the first six months of life, with adequate and safe complementary feeding from age six months and continued breastfeeding for up to two years and beyond,[1] and related maternal nutrition and support. In addition, the Global Strategy takes account of children in exceptionally difficult circumstances, including those born to HIV-positive women.

1.5 HIV and Infant Feeding Framework for Priority Action

As part of the Global Strategy for IYCF, the HIV and Infant Feeding Framework for Priority Action[2] (Annex 4) was developed. The Framework proposes for consideration by governments the following priority actions related to infant and young child feeding:

- Develop or revise (as the case may be) a comprehensive national policy on infant and young child feeding which includes HIV and infant feeding
- Implement and enforce the International Code of Marketing of Breast-milk Substitutes and subsequent relevant WHA resolutions
- Intensify efforts to protect, promote and support appropriate infant and young child feeding practices in general, while recognizing HIV as one of a number of exceptionally difficult circumstances
- Provide adequate support to HIV-positive women to enable them to select the best feeding option for themselves and their babies and to successfully carry out their infant-feeding decisions
- Support research on HIV and infant feeding – including operations research, learning, monitoring and evaluation at all levels – and disseminate findings.

[1] This recommendation applies everywhere to HIV-negative women and women unaware of their status, including places with high HIV prevalence and low acceptance or availability of interventions to prevent HIV transmission to infants.

[2] The Framework has been endorsed by WHO, UNICEF, UNAIDS, UNFPA, World Bank, WFP, UNHCR, FAO and IAEA.

BOX 3

The Human Rights Perspective

The 1997 WHO, UNICEF and UNAIDS Joint Policy Statement on HIV and Infant Feeding is firmly based on the need to protect, respect and fulfil human rights. Policies should therefore:

Comply with international human rights instruments. All women and men, irrespective of their HIV status, have the right to determine the course of their reproductive lives and health, and to have access to information and services that allow them to protect their own and their families' health. Decisions that concern the welfare of children should be in keeping with their best interests.

Protect, respect and fulfil children's rights. The UN Convention on the Rights of the Child (1989) requires signatories to take all appropriate measures to combat disease and malnutrition in children, to reduce child mortality, and to ensure their healthy growth and development. Children have a right to the highest attainable standard of health, and mothers have a right to information about the benefits of breastfeeding.

Protect, respect and fulfil women's rights. Mothers have the right to decide how they will feed their children. They should be given the fullest possible information on which to base their decision and support for the course of action they choose. A mother's choice, however, may well have implications for her family as a whole, and at her own discretion she may encourage other members (for example, the child's father) to share responsibility for decision-making.

Make HIV testing and counselling available for women. Women have the right to know about HIV/AIDS in general and their own HIV status in particular. Care should be taken to ensure that no policy contributes to the stigmatization of women as sources of HIV infection of their infants, or increases their vulnerability to discrimination and violence. From this point of view, every effort should be made to promote for HIV-positive women an "enabling environment" that reduces their vulnerability and enables them to carry out decisions and live positively with HIV infection. Whatever the context, women also have the right not to know their HIV status.

Ensure information for women. Women also have the right to information about, and the means of, protection from HIV and other STIs.

These principles are derived from international human rights instruments, including the Universal Declaration of Human Rights (1948), the Convention on the Elimination of All Forms of Discrimination Against Women (1979), and the Convention on the Rights of the Child (1989), as well as from international consensus agreements, including the Cairo Declaration (1994), and the Beijing Platform for Action (1995).

2. HIV transmission through breastfeeding: risks and options

The Global Strategy on Infant and Young Child Feeding describes optimal infant-feeding practices for the general population and also recognizes that there are exceptionally difficult circumstances that call for specific approaches to infant feeding, such as the birth of infants to HIV-positive mothers. This section sets out information on the risks of HIV transmission through breastfeeding, the risks of not breastfeeding, UN recommendations on HIV and infant feeding, and feeding options for HIV-positive women. On the basis of this information, decision-makers should:

- *be fully aware of risks and benefits of all infant-feeding options for HIV-positive women*
- *take steps to ensure that health-care providers and counsellors are aware of, and able to implement, recommendations on infant and young child feeding, including HIV and infant feeding, at various levels*
- *work with staff to support all women, and to select and propose appropriate infant-feeding options to be discussed with HIV-positive women.*

2.1 Risk of HIV infection in infants and young children

Increasing numbers of children have HIV infection, especially in the countries hardest hit by the pandemic. In 2002, an estimated 3.2 million children under 15 years of age were living with HIV/AIDS, a total of 800 000 were newly infected, and 610 000 died.

By far, the main source of HIV infection in young children is MTCT. The virus may be transmitted during pregnancy, labour and delivery, or by breastfeeding. HIV/AIDS, however transmitted, has been estimated to account for about 8% of deaths in children under five years of age in sub-Saharan Africa. In areas where the prevalence of HIV in pregnant women exceeded 35%, the contribution of HIV/AIDS to childhood mortality was as high as 42%.[1]

Rates of mother-to-child transmission range from 14–25% in developed countries and from 13–42% in developing countries, where breastfeeding is more common. It is estimated that 5–20% of infants born to HIV-positive women acquire infection through breastfeeding[2] (see table), which explains the different overall transmission rates in these settings. Data from different studies indicate that breastfeeding for up to two years may be responsible for one-third to one-half of HIV infections in infants and young children in African countries.[3]

Estimated risk and timing of mother-to-child transmission of HIV in the absence of interventions[4]

Timing	Transmission rate[5]
During pregnancy	5–10%
During labour and delivery	10–15%
During breastfeeding	5–20%
Overall without breastfeeding	15–25%
Overall with breastfeeding to 6 months	20–35%
Overall with breastfeeding to 18 to 24 months	30–45%

HIV transmission may occur for as long as a child is breastfed. Among women recently infected with HIV, the risk of transmission through breastfeeding is nearly twice as high as for women infected before or during pregnancy, because of high viral load shortly after initial infection.

[1] Walker N, Schwärtlander B, Bryce J. Meeting international goals in child survival and HIV/AIDS. *Lancet* 2002; 360:284–9.

[2] Few studies give information on the mode of breastfeeding (exclusive or mixed). In most cases, mixed feeding may be assumed.

[3] De Cock KM, Fowler MG, Mercier E, et al. Prevention of mother-to-child HIV transmission in resource-poor countries – Translating research into policy and practice. *JAMA* 2000; 283: 1175–82.

[4] Source: adapted from De Cock KM, Fowler MG, Mercier E, et al. Prevention of mother-to-child HIV transmission in resource-poor countries – Translating research into policy and practice. *JAMA* 2000; 283: 1175–82.

[5] Rates very because of differences in population characteristics such as maternal and CD4+ cell counts and RNA viral load, and also duration of breastfeeding.

BOX 4

Is the child infected?

Conventional HIV tests detect antibodies, not the virus itself. Babies are born with antibodies in their blood, transferred passively via the placenta from their mothers. During the first months of life, maternal antibodies to HIV cannot be distinguished from those that the infant may have produced. Therefore, with antibody tests (also known as serological) tests, one cannot tell at birth whether the infant of an HIV-infected mother is also infected.

In about one-half of infants, maternal antibodies will have disappeared by nine months of age, although they can persist until 15–18 months. A positive test before the age of 15–18 months could be due to infection of the child or persistence of maternal antibodies. A positive test at 15–18 months or later means that the infant is infected. Children who test negative at that age or afterwards, and have not been recently breastfed, can be confidently considered as uninfected.

A negative antibody test after 15–18 months of age in a child who is breastfeeding does not rule out HIV infection, for the child is at continued risk, and the test will need to be repeated later. A negative HIV antibody test in a child older than 15–18 months is reliable only if it is done at least six months after breastfeeding has stopped.

Virological tests (e.g., PCR, heat dissociated p24 Ag) can be used to diagnose infection at an early age. These, however, are not widely available in most non-research settings and are relatively expensive.

Given the limitations of testing methods, it is necessary, in regard to infant feeding, to act on the assumption that the infant of an HIV-infected mother is not infected at birth (which will be true for between 70 to 85 per cent of infants, even without any preventive measures). In cases where the mother has received anti-retroviral drug prophylaxis during pregnancy or labour, this assumption can be made with even more confidence (over 90 per cent born uninfected).

Besides duration of breastfeeding, evidence of an increased risk of transmission has been shown for maternal factors (disease progression [as measured by low CD4+ count or high RNA viral load in plasma, or severe clinical symptoms], breast health [e.g. mastitis], local immune factors in breast milk, presence of systemic infections) and infant factors (morbidity [e.g. oral thrush], mode of breastfeeding). Studies suggest that exclusive breastfeeding during the first few months of life may be associated with a lower risk of HIV transmission than mixed feeding. Research is in progress to clarify this issue.

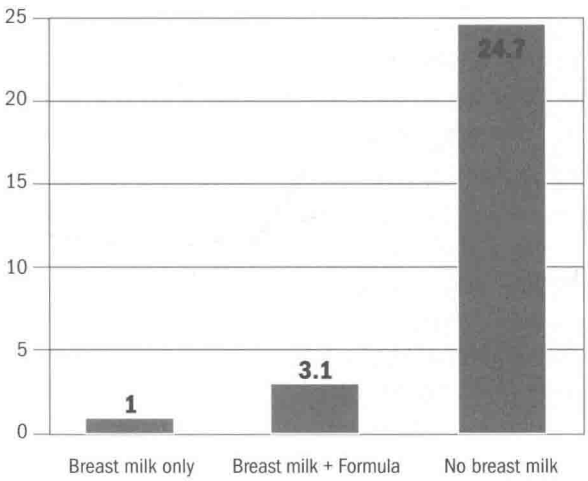
2.2 Risks of not breastfeeding

The risks associated with not breastfeeding vary with the environment, and with the individual circumstances of the mother and her family.

Meta-analysis has shown that lack of breastfeeding compared with any breastfeeding exposes children to increased risk of malnutrition, diarrhoea and pneumonia, especially in the first year of life. Even in developed countries an infant is at increased risk of diarrhoea. Early and exclusive breastfeeding is especially critical for new-borns (see graph). In poor countries, not breastfeeding during the first two months of life is associated with a sixfold increase in mortality from infectious diseases, a risk that drops to less than threefold by six months, and continues to decrease with time.

Every year, up to 55% of infant deaths from diarrhoeal disease and acute respiratory infections may result from inappropriate feeding practices.

Relative risk for diarrhoea mortality (0–1 month) by type of feeding[1]



[1] Victora C, Smith PG, Vaughn JP, et al. Evidence for protection by breast-feeding against infant deaths from infectious diseases in Brazil. *Lancet* 1987; Aug;(1)319–21.

2.3 Recommendations for infants born to HIV-positive women

Recommendations on preventing transmission of HIV through breastfeeding depend on a woman being tested for HIV, requesting and being given the result, and accepting the implications of that result. (See section 6.1 for more information on HIV testing and counselling, and Box 4 for information on testing of young children.) If a woman is HIV-negative or does not know her status, the general recommendations on infant and young child feeding apply (see section 1.4). Awaiting the result of an HIV test should not be a reason to delay initiation of breastfeeding.

Given the need to minimize the risk of HIV transmission to infants while at the same time not increasing their risk of other causes of morbidity and mortality, UN (WHO/UNICEF/UNAIDS/UNFPA) recommendations state that "when replacement feeding is acceptable, feasible, affordable, sustainable and safe (see Box 5 for definitions), avoidance of all breastfeeding by HIV-infected mothers is recommended. Otherwise, exclusive breastfeeding is recommended during the first months of life" and should then be discontinued as soon as feasible.[1] The recommendations further state that "when HIV-infected mothers choose not to breastfeed from birth or stop breastfeeding later, they should be provided with specific guidance and support for at least the first two years of the child's life to ensure adequate replacement feeding".

Until further evidence is available on this subject, antiretroviral (ARV) use is not recommended as a public health intervention to reduce *postnatal* transmission. Where mothers are using combinations of ARVs for treatment (e.g., highly active antiretroviral treatment [HAART]), the infant-feeding recommendations in this document still apply.

At the time of writing these guidelines there are many planned or ongoing studies to assess the impact of ARV use during breastfeeding, but there is so far no evidence on its impact on the health of infants and mothers. Questions remaining to be answered include:

- Can ARVs reduce the risk of postnatal HIV transmission through breastfeeding?
- Should these drugs be given to the mother or the infant or both?
- What might be the long-term and short-term consequences for the health of the baby of ARV use by either mother or baby?
- What is the long-term health impact for the mother of ARV use for prevention of postnatal transmission only?

2.4 Infant-feeding choices for HIV-positive women

Counselling of HIV-positive mothers should include information about the risks and benefits of various infant-feeding options (listed below) and guidance in selecting the most suitable option in their circumstances. On the basis of local assessments and formative research,[2] some of the options in this document may be excluded as not locally suitable. Local options, however, should never be narrowed to one blanket recommendation for all HIV-positive women, since specific circumstances will vary even within seemingly homogeneous settings, and women have the right to make an individual choice.

Whatever a mother chooses, she should be supported in her decision. The exact support that might be provided will depend on the policy, capacity and socioeconomic conditions of the country, but would always include information, counselling and monitoring of the growth and health of her child (see sections 6.5 and 6.6). Postnatal support for women, regardless of their infant-feeding choice, is often inadequate.

In most countries, policy must cover a range of socioeconomic conditions; its aim must be to promote, protect and support breastfeeding for most mothers and infants; at the same time it must provide for women who are HIV-positive to receive suitable information on alternative feeding options, enabling them to decide what, in the circumstances, is best for them and their babies, and to receive support to carry out their choice. The information must be free from commercial pressures and counsellor bias, and the support should include helping a woman to reduce the social risks of acting on her choice.

Infant-feeding options are described briefly below, and the details of each option and their implications for

[1] This would normally imply the same conditions as for replacement feeding from birth – that is, acceptable, feasible, affordable, sustainable and safe.

[2] Formative research is defined by the World Bank as "planning research, specifically a combination of rapid, interactive information-gathering methods with mothers and other key people, through which important scientific information and key cultural and personal concerns are examined and negotiated to arrive at feasible, acceptable and effective strategies and practices that lead to improved health and nutrition".