

*Mother-to-child  
transmission of HIV*



*UNAIDS  
Technical update*

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# At a Glance

- **Mother-to-child transmission (MTCT) is the overwhelming source of HIV infection in young children. Of the 3 million infants infected with HIV since the beginning of the pandemic, about 90% have been born in Africa. However, the number of cases in India and South-East Asia appears to be rising rapidly.**
- **In the absence of preventive intervention, the probability that an HIV-positive woman's baby will become infected ranges from 15% to 25% in industrialized countries and 25% to 35% in developing countries.**
- **The virus may be transmitted during pregnancy, labour, delivery, or after the child's birth during breastfeeding. Among infected infants who are not breastfed, about two-thirds of cases of MTCT occur around the time of delivery and the rest during the pregnancy (mostly during the third trimester). In populations where breastfeeding is the norm, it may account for more than one-third of all transmissions.**
- **In 1994 a regimen using the antiretroviral drug zidovudine was shown to reduce MTCT by about two-thirds in the absence of breastfeeding. The ACTG 076 regimen, as it is known, is now widely used in most industrialized countries. However, at an average cost of US\$ 1000 per pregnancy, it was too expensive for widespread use in poor countries.**
- **A trial concluded in Thailand in February 1998 showed that a short regimen of zidovudine pills given during the last weeks of pregnancy cuts the rate of MTCT during childbirth by half, at less than a tenth of the cost of the longer course. Because the women were also given safe alternatives to breast milk, MTCT in the study population was reduced to 9%, compared with a norm in developing countries of 25% to 35%.**
- **The introduction of MTCT prevention procedures will require—at the very least—planning for expanded voluntary counselling and HIV testing services for women, strengthening prenatal, delivery and postnatal care programmes, and care services for people diagnosed as HIV-positive. It will also require expanding access to antiretroviral drugs and to replacement feeding methods as alternatives to breastfeeding.**
- **Even in the absence of therapeutic interventions, voluntary counselling and testing offers benefits for HIV-positive women, men and their sex partners. It permits them to make informed decisions regarding sexual activity, contraception, termination of pregnancy (where legally available) and methods of infant feeding, and gives them the opportunity of seeking early access to care.**
- **Given the importance of breastfeeding to infant health, but recognizing the part breast milk plays in mother-to-child transmission, UNAIDS, UNICEF and WHO recommend that appropriate alternatives to breastfeeding be made available and affordable for women whom testing has shown to be HIV-positive, while efforts to protect, promote and support breastfeeding by women who are HIV-negative or of unknown HIV status be strengthened.**

## UNAIDS Best Practice materials

The Joint United Nations Programme on HIV/AIDS (UNAIDS) is preparing materials on subjects of relevance to HIV infection and AIDS, the causes and consequences of the epidemic, and best practices in AIDS prevention, care and support. A *Best Practice* Collection on any one subject typically includes a short publication for journalists and community leaders (Point of View); a technical summary of the issues, challenges and solutions (Technical Update); case studies from around the world (*Best Practice Case Studies*); a set of presentation graphics; and a listing of key materials (reports, articles, books, audiovisuals, etc.) on the subject. These documents are updated as necessary.

Technical Updates and Points of View are being published in English, French, Russian and Spanish. Single copies of Best Practice materials are available free from UNAIDS Information Centres. To find the closest one, visit UNAIDS on the Internet (<http://www.unaids.org>), contact UNAIDS by email ([unaids@unaids.org](mailto:unaids@unaids.org)) or telephone (+41 22 791 4651), or write to the UNAIDS Information Centre, 20 Avenue Appia, 1211 Geneva 27, Switzerland.

*Mother-to-child transmission of HIV: UNAIDS Technical Update* (UNAIDS Best Practice Collection: Technical Update). Geneva: UNAIDS, October 1998, revision.

1. Acquired immunodeficiency syndrome—transmission
2. Breastfeeding
3. Acquired immunodeficiency syndrome—prevention and control

WC 503.71

## Background

**Mother-to-child transmission (MTCT) is by far the largest source of HIV infection in children under the age of 15. In countries where blood products are regularly screened and clean syringes and needles are widely available, it is virtually the only source in young children. In 1997, an estimated 600,000 infants worldwide were infected with the virus, bringing the total number of young children living with HIV to over 1 million at the end of the year. Of the 3 million infants infected with HIV since the beginning of the pandemic, about 90% have been born in Africa, owing to a combination of high HIV prevalence in pregnant women and high fertility rates. However, the number of cases in India and South-East Asia appears to be rising rapidly. AIDS may have already doubled mortality in children under the age of 5 in regions most affected by the virus.**

The virus may be transmitted during pregnancy, labour, delivery, or after the child's birth during breastfeeding. Among infected infants who are not breast-fed, most MTCT occurs around the time of delivery (that is, just before or during labour and delivery). In populations where breastfeeding is the norm, breastfeeding may account for more than one-third of all cases of MTCT transmission. (See the joint UNAIDS/UNICEF/WHO document *HIV and Infant Feeding* in the Selected Key Materials.)

In sub-Saharan Africa, MTCT is contributing substantially to rising child mortality rates in many areas. In the Zimbabwean capital of Harare, for instance, one in three pregnant woman is HIV-infected and infant mortality doubled to 60 per 1000 between 1990 and 1996. Deaths among one to five year-olds, the age group in which the bulk of child AIDS deaths are concentrated, showed an even bigger leap proportionately from 8 to 20 per 1000 over the same time period (Harare municipal health department, unpublished report).

Most studies estimate the probability that an HIV-positive woman's baby will have the virus as ranging from 15% to

25% in an industrialized country (if there is no ZDV treatment) and 25% to 35% in a developing country (see Msellati in the Selected Key Materials). These differences are mainly explained by the frequency and duration of breastfeeding. Other factors known to increase the risk of MTCT include advanced stage of disease in the mother, recent maternal infection, and high fetal exposure to infected maternal body fluids during gestation and delivery. The risk of HIV-2 transmission is about 20 times less than that for HIV-1. (For more information see the articles by Mandelbrot *et al.* and by Newell in the Selected Key Materials.)

The most important public health measure against MTCT remains the primary prevention of infections in women of childbearing age.

Until recently there was no means of preventing MTCT during pregnancy, labour and delivery for HIV-positive women who wished to give birth. This situation is now changing as the benefits of various MTCT interventions are being studied and demonstrated. Two used in combination—a regimen of antiretroviral drugs along with replacement feeding—have already been proven highly effective.

### Antiretroviral drugs

Until 1998, only one drug regimen had been proven to reduce the risk of HIV transmission from mother to child. A study called ACTG 076 found that zidovudine (ZDV, also known as AZT) given orally starting in the fourth month of pregnancy, intravenously during labour, and for six weeks to the infant in a non-breastfed population, reduced mother-to-child transmission of HIV by two-thirds.

The ACTG 076 regimen, though now provided routinely in most industrialized countries, is not well suited to widespread use in many developing countries for cost and logistical reasons. Costing an average US\$ 1000 per pregnancy in industrialized countries, it requires both oral (i.e., pills) and intravenous administration, and must be started by the mother as early as possible during the second trimester of pregnancy. The early start is a severe disadvantage since many pregnant women in developing countries do not seek or access prenatal care until beginning of labour.

Recently, however, the situation changed dramatically for the better. A CDC-sponsored trial concluded in Thailand in February 1998 showed that

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a short course of ZDV pills given to women during the last four weeks of pregnancy and labour cuts the rate of vertical transmission during childbirth by half. The average cost of the ZDV in Thailand is US\$ 50 per pregnancy (drug cost only, using a Thai-manufactured generic). Because the women in the study were also given safe alternatives to breast milk, the short treatment reduced MTCT in the study population to 9%, compared with 18% in the control group who did not receive a placebo but did receive replacement feeding (as mentioned, the norm in developing countries is 25–35%.)

### **Other interventions targeting pregnancy, labour and delivery**

The other interventions currently being explored for their potential to prevent MTCT include:

- *Vitamin A supplements:* A deficiency of vitamin A in HIV-infected mothers is associated with a higher risk of transmission from mother to child. Ongoing trials in Malawi, South Africa, Tanzania and Zimbabwe are currently studying whether adding vitamin supplements to pregnant women's diet affects the risk of a child becoming infected. If proven to be effective, such an intervention would be inexpensive, have additional health benefits for mother and child whatever their HIV status, and not require HIV testing. Other micronutrients have also been suggested as possible preventive means.
- *Cleansing the birth canal during labour and delivery:* There is a relatively high risk of transmission during delivery due to presence of the virus in blood and mucus in

the birth canal. Therefore, various methods of vaginal washing (lavage) before and during delivery are being investigated in several developing countries. In a trial performed in Malawi, lavage using chlorhexidine showed no overall difference in rates of MTCT, but did show a significant reduction in cases where membranes were ruptured for more than four hours; it also resulted in significant reduction of infant mortality and morbidity. Further studies using different concentrations of chlorhexidine and other microbial agents are under way.

- *Delivery by Caesarean section:* Like vaginal washing, delivery by Caesarean section reduces the child's exposure to the mother's body fluids during birth and has been shown to lower the risk of HIV infection. However, it is not a wide-scale solution because of its cost, logistical requirements and risk of post-operative complications.
- *Other obstetrical modifications* can reduce contact between the infant and the mother's infected body fluids. These involve avoiding episiotomies, unnecessary artificial rupture of membranes, fetal scalp electrodes and other invasive procedures.
- *Immunization:* Studies in Haiti and Uganda are currently investigating passive immunization of women and children (infusion of HIV-specific neutralizing antibodies). Research on vaccine development (active immunization) may also prove successful eventually.

For more detailed information on these preventive methods, see the articles by Newell and Reggy in the Selected Key Materials.

## The Challenges

The success of the Bangkok trial (see box) and the progress of research into other interventions suggest strongly that MTCT interventions will come into much wider use by the end of the century. For this reason, many of the public health challenges currently posed by MTCT involve preparing for the future in a one-to-two year time frame. The most obvious challenges are financial and technical, but there are also complex issues to be resolved regarding integration of new interventions with balanced HIV/AIDS strategies.

### **The cost of new interventions**

The drug-acquisition cost per mother-child pair treated in Thailand with the regimen tested in Bangkok is about US\$ 50. Yet even at this relatively low cost, it will be a major challenge to many health systems to provide ZDV to all women who could benefit from it. As well, additional outlays will be necessary including for testing and counselling, support for replacement feeding during the infant's first year of life, and services delivery.

### **Remaining questions about zidovudine and MTCT**

The efficacy of zidovudine in preventing HIV transmission from an HIV-positive mother who breastfeeds is currently not known. Zidovudine may provide some degree of protection, although probably much less than that provided to infants who are not breastfed. Since the majority of HIV-positive women facing the risk of MTCT breastfeed their infants, it is critical to resolve this issue. It is also necessary to

learn more about the effects of introducing breastfeeding alternatives on the morbidity and mortality of infants born to HIV-positive women.

### **Rising need for voluntary counselling and testing services**

As interventions become more widespread, HIV-infected women would have to know their HIV status in order to benefit from them. Therefore, voluntary counselling and testing (VCT) services will be required on larger scale than is currently available in most countries. This implies an expansion of VCT in general and within prenatal programmes. These services should include confidentiality, referral to psychological support, and care services for HIV-positive women who may face abandonment by their family and community ostracism.

### **Reorganization of pre-, peri- and post-natal care**

Expanding access to counselling, testing, family planning services and antenatal and postnatal care—along with adapting obstetrical practices and introducing antiretroviral regimens—will have a heavy impact on clinical facilities. All aspects of providing and monitoring treatment of mothers and children will have to be planned and implemented, including management of opportunistic infections. Prenatal care will be the first area affected but, since infants born to HIV-infected mothers will need extra care themselves, postnatal settings will also come under pressure. HIV testing and the monitoring of HIV infection and antiretroviral

treatment will also impose extra work on laboratories. At the national level, additional resources will be required to pay for the new interventions and administrative costs. Public health authorities will have to balance the various levels of service and types of intervention that are possible with available resources and infrastructure.

### **Decision-making about infant feeding**

In recent years, breastfeeding has been heavily promoted as a natural, cheap means of providing adequate nutrition and protection against many childhood diseases, with birth-spacing as a secondary benefit. In comparison, the cost of infant formula, along with the clean water and fuel needed to prepare it, is often beyond the means of poor families in developing countries. Furthermore, when incorrectly used—for example, if mixed with dirty water or if instructions are not followed—feeding with infant formula may lead to severe malnutrition and fatal infectious diseases. Even safely used, it may also lead to stigma and rejection for women who find they are infected and, after counselling, decide not to breastfeed—a visible act in most developing countries. The choice of feeding method can thus be a difficult dilemma for an HIV-positive mother.

### **Care for parents**

HIV testing cannot be promoted and made acceptable for mothers and their partners unless the benefits of knowing that one is HIV-positive outweigh the risks

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of psychological stress and discrimination. Furthermore, the best chance for a child to survive is to have healthy parents. Medical, psychological and social support should thus be improved for infected mothers and their families.

### Care for orphans

Around the world, 8 million children have already lost their mothers—and often their fathers—before they were 15 years old. It is estimated that this figure will almost double by the

year 2000. Although some of these children will be infected and others will not, all will need care and support as they grow up. In many countries, the extended family is the traditional social security system which looks after orphans and affected families. But this system is being pushed to the breaking point in the worst affected communities—long before the full impact of AIDS has been felt.

Preventing MTCT of HIV may increase the number of HIV-uninfected children that are

orphaned and need social support. However, it is important to recognize that in the absence of preventive interventions, more HIV-positive children will be born and require not only support but medical care. Contrary to early predictions that most infected infants would die very early in life, 50% of HIV-infected children in developing countries (and 75% in developed countries) survive beyond their fifth birthday and need to be cared for.

### A shorter, less expensive ZDV regimen

The Bangkok Perinatal ZDV Study was a collaborative effort between the Thai Ministry of Public Health and the US Centers for Disease Control and Prevention (CDC). The following is adapted from a synopsis issued by CDC's Division of HIV/AIDS Prevention-Surveillance and Epidemiology in March 1998:

*"Methods... HIV-infected pregnant women were enrolled with their written informed consent and randomized at each of two study hospitals in Bangkok to receive ZDV or placebo. The ZDV regimen consisted of 300 mg orally twice daily from 36 weeks gestation until the onset of labor and 300 mg every three hours from the onset of labor until delivery. All women were recommended not to breastfeed and provided with infant formula, consistent with Thai national guidelines for HIV-infected women... The study endpoint was the HIV status of the infant at age 6 months as determined by PCR testing for HIV DNA performed on blood specimens taken at birth, 2 months, and 6 months of age.*

*"Results... 397 women were enrolled (198 in ZDV arm, 199 in placebo arm) and 393 women delivered. At enrollment, the median age was 24 years and the median CD4+ count was 424 cells/ml. The median duration of antenatal treatment was 24 days and the median number of labor doses was 3. No mothers breastfed their infants. Adverse events were balanced between the treatment arms. As of February 10, 1998, data were available for 391 children. Fifty-two children have tested PCR-positive, 17 in the ZDV arm and 35 in the placebo arm. Of the remaining 339 children, 310 tested negative at 2 months of age or older. There are 29 children whose infection status is pending (negative at birth but no further testing yet).*

*"Conclusion. A short course of twice-daily oral ZDV used from 36 weeks gestation until delivery was safe and reduced the risk for mother-infant HIV transmission by approximately one half. This regimen may be useful for preventing HIV infection in children in developing countries."*

## The Responses

With the advances described earlier in this document, the world is considerably better equipped today than even one year ago to help pregnant HIV-positive women to safeguard the health of their children. Nonetheless, it must be emphasized that the best means of reducing mother-to-child transmission remains primary prevention—making sure that women of childbearing age do not get infected in the first place.

Any national strategy to prevent mother-to-child transmission of HIV should therefore be part of broader strategies to prevent the transmission of HIV and STDs, to care for HIV-positive women and their families, and to promote maternal and child health. The ability to make interventions to reduce MTCT widely available, and as soon as possible, depends on political will, affordability of the interventions, and the strength of existing human resources and infrastructures.

### Improving affordability of interventions

The three principal factors that affect the affordability of interventions to prevent MTCT are:

- cost of drugs;
- cost of safe alternatives to breastfeeding;
- cost of HIV tests.

Service delivery, including voluntary HIV counselling and testing, represents a further set of costs.

In addition to the breakthrough made by the Bangkok trial, two other recent developments will help reduce the cost of drugs

themselves. The first is WHO's addition of zidovudine for MTCT to the Essential Drug List, which facilitates bulk purchasing at negotiated prices. The second comes from the pharmaceutical manufacturer Glaxo Wellcome, which has recently offered zidovudine at substantially reduced prices (see box).

Any effort to reduce the cost of using commercial alternatives to breast milk for HIV-positive mothers must conform to the International Code of Marketing of Breast-Milk Substitutes and subsequent World Health Assembly resolutions. However, this still provides considerable flexibility for price negotiations, bulk buying and distribution programmes. As well as commercial infant formula, more affordable home-prepared alternatives are possible—for example, formula made from animal milks (see *HIV and Infant Feeding* in the Selected Key Materials).

The challenge of reducing the cost of HIV tests is being addressed in a number of ways. Since 1990, WHO has helped governments and agencies to obtain high-quality test kits through negotiation of bulk purchase prices from manufacturers. The average price per kit purchased under this programme is around US\$ 1.00. Nearly half of the kits are simple-and-rapid test kits. In partnership with UNAIDS, this programme continues to negotiate prices and update its list of evaluated kits annually. The list and programme criteria are available from the blood safety unit (BLS) at WHO headquarters. (For more information see UNAIDS Technical Update *HIV Testing Methods*.)

### Reduced prices for ZDV

In March 1998, Glaxo Wellcome announced substantially lower pricing for Retrovir (ZDV) for the prevention of mother-to-child transmission in developing countries. The company will now also commit to provide an initial supply of the drug to facilitate the initiation of a new UNAIDS mother-to-child initiative being launched by UNAIDS, UNICEF and WHO. Thereafter, Glaxo Wellcome will offer preferential pricing of the drug to the UN agency partners as the global initiative expands, as well as to other interested parties in developing countries who wish to establish this treatment for women within their public health programmes.

### Create an optimal setting for service delivery

In countries with well functioning health systems, the additional service delivery costs of interventions to prevent MTCT may already be affordable. Other countries may require more substantial investments to strengthen their health infrastructure to permit incorporation of large-scale interventions. Where applicable, traditional health and community support systems should also be fully utilized. Such investments will have a broad beneficial effect on the health sector more generally and should be encouraged.

The following characterize the optimum settings in which to

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implement MTCT prevention interventions:

- All women should have knowledge about HIV and access to the information necessary to make appropriate choices about HIV prevention, sexual and reproductive health, and infant feeding in the context of HIV.
- HIV counselling and testing should be available for pregnant women, those contemplating pregnancy, and their partners.
- All pregnant women should have access to antenatal, delivery and post-partum care, and to a skilled attendant at birth. For the shorter zidovudine regimen to be effective, at least one antenatal visit with follow-up is needed before 36 weeks, and preferably before 34 weeks, of gestation. In order to benefit from this intervention, women who receive antenatal services before 36 weeks should have access to HIV voluntary counselling and testing. Skilled care during delivery is also needed since the shorter zidovudine regimen includes administration of zidovudine during labour and delivery.
- There should be follow-up of children at least until 18 months, especially regarding nutrition and childhood illnesses.
- Medical and other support services should be accessible to HIV-infected mothers and their families.
- Human rights, including reproductive rights and the rights to informed choices and confidentiality, should be respected. This means that the social environment must enable women

and families to make informed choices and cope with the choices they make.

### **Voluntary counselling and testing**

All women should have access to voluntary HIV testing. This means testing must be done with the informed consent of the woman, using reliable laboratory tests and ensuring confidentiality (see Technical Update *Counselling and HIV/AIDS*.) The benefits to a woman of knowing her HIV status are not limited to situations where expensive treatment interventions are available. They may also include the ability to make informed choices about infant feeding options, earlier access to care for both mother and child, the opportunity to terminate pregnancy where desired and legal, and the ability to make informed decisions about sexual practices and future fertility.

There is a growing realization that these benefits will be limited unless voluntary counselling and testing programmes for MTCT prevention also target the male partners. In a recent study in West Africa, more than 80% of the women accepted the principle of an HIV test so long as their regular partner also agreed. Following testing, both men and women found to be HIV-negative can be counselled on appropriate HIV prevention measures and risk-reduction behaviour.

Acceptability of counselling and testing is highly variable from site to site. For instance, recent studies found that only 33% of women at a health centre in Harare, Zimbabwe, accepted

counselling and testing, compared to 90% at a clinic in Soweto, South Africa. The availability of new and effective interventions is likely to increase the acceptability of testing in most cases.

In places where a positive test increases a woman's risk of stigma, violence or even abandonment, UNAIDS strongly supports carefully designed and monitored voluntary testing and counselling programmes. Careful monitoring and evaluation will enable health and social service providers to better define counselling requirements and design measures such as long-term support for families that include HIV-positive members, family planning referral, spouse counselling, and community action such as campaigns against discrimination.

### **Referrals to family planning programmes**

All women and men, irrespective of their HIV status, have the right to determine the course of their reproductive life and health, and to have access to information and services that allow them to protect their own and their family's health. Links between HIV testing programmes and family planning services must be strengthened in order for HIV-infected women and their partners to make informed choices regarding their future reproductive life. One specific point is that breastfeeding has a birth-spacing effect that will disappear (and should be replaced) if the woman chooses not to breastfeed her infant. Failing to address this issue through counselling and education can

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result in more HIV-positive infants being borne than would otherwise be the case.

### **Infant feeding programmes**

An important response to MTCT during breastfeeding is to ensure safe, affordable alternatives to traditional breastfeeding in places where they are lacking. In industrialized countries, HIV-positive mothers are advised not to breastfeed and, if necessary, are provided with free infant formula. In Thailand, where there is relatively wide access to safe water, HIV-positive mothers are starting to be given free infant formula by the government, provided with information on risk factors, and encouraged not to breastfeed. In most Latin American countries, HIV-positive women are encouraged to avoid breastfeeding.

Realistic and sustainable options in many settings may eventually include wet-nursing by relatives who have been tested and are HIV-negative, and use of home-prepared formula made from animal milks, typically from cows, goats, buffaloes or sheep. The composition of animal milks is different from that of human milk, and they may lack micro-nutrients, especially iron, so it is best if they are modified for infants according to nutritionally approved recipes. Whatever options eventually become available, counselling programmes (along with voluntary testing) will be required to help pregnant women make free and informed choices and to support them in whatever decision they take (see box).

### **The health of the mother**

The use of short-course ZDV monotherapy during pregnancy

increases an HIV-positive woman's chances of having a healthy child without harming her own health. However, it is not a treatment for her. HIV-positive mothers are generally asymptomatic, and at this stage of HIV infection it would not benefit them to continue on ZDV monotherapy after giving birth. In fact, this would reduce the benefits they might receive from such therapy in the later stages of infection. It is of greater benefit for HIV-infected mothers and other family members to gain access to drugs that can prevent and treat opportunistic infections (particularly tuberculosis), to social and community support, and to support against discrimination and rejection.

ZDV monotherapy and replacement feeding are intended to be integrated with other HIV/AIDS and MCH programmes and result in better:

- primary HIV prevention in women and their partners;
- access to voluntary testing and counselling;
- care and other support services for those found to be HIV-positive;
- care during pregnancy, delivery and post-partum; and
- family planning services.

MTCT prevention programmes will thus have many secondary benefits for the health of women.

### **Evidence-based advocacy**

The most powerful means of effecting change at a governmental level generally lies in demonstrating the success of interventions through well monitored pilot programmes, along

with calculating the costs of not acting to prevent this kind of transmission. The trials for shorter ZDV regimens are providing powerful new data for analysis of costs and benefits.

An example is a recent analysis of the economics of MTCT prevention in low and middle-income countries (see Marseilles in the Selected Key Documents). Costs taken into account were the ZDV itself, test kits, infant formula, service delivery costs; these were compared with treatment costs for an infected child. An estimated cost of US\$ 53 per disability-adjusted life year (DALY) was calculated for rural Tanzania, a figure that compares favourably with other HIV and non HIV-related interventions in sub-Saharan Africa. (Note that the World Bank suggests that interventions costing around US\$ 50 per DALY compare favourably with other uses of health resources in low- and middle-income countries.) In Thailand, with lower HIV prevalence and therefore higher costs of counselling and testing per infected woman identified, the programme was judged to be less cost effective at an estimated US\$ 132 per DALY. However, if VCT costs are covered by other HIV programmes, the MTCT intervention becomes cost-saving.

The programme budgets required to serve a population of 10 million in Tanzania and Thailand would be approximately US\$ 4.6 million and US\$ 2.2 respectively. In the medium to longer term it might be possible to reduce costs through the bulk purchasing of drugs and test kits, focusing efforts on areas of high prevalence, and streamlining service delivery.

### **HIV and infant feeding: guidelines for policy makers**

Given the vital importance of breast milk for child health, and the proven risk of HIV transmission through breastfeeding, it is now crucial that governments and public health authorities develop policies on HIV infection and infant feeding. The following excerpts from the UNAIDS, UNICEF and WHO joint guidelines on HIV and infant feeding provide policy-makers with key elements for formulating such policies. (The full text of these guidelines can be requested from UNAIDS or viewed on the Internet at <http://www.unaids.org/highband/document/epidemiology/infant.html>.)

*Decision-makers need to consider the following:*

*....If the government offers free or subsidized breast-milk substitutes to some or all HIV-positive mothers who choose not to breastfeed, these mothers must be assured of breast-milk substitutes for at least 6 months. Additional costs include micronutrient supplements and extra health care costs for non-breastfed children. Against this can be set reduced costs of treating fewer children with AIDS.*

*....The risk of giving replacement feeds must be less than the risk of HIV transmission through breastfeeding, or there is no point in using them. Essential elements include knowledge and commitment on the part of care-givers, safe water, assured supplies of affordable fuel, easy access to quality health care for mothers and infants, and a good level of support from counsellors and/or social workers. Women choosing not to breastfeed will need extra support and counselling.*

*....If free or subsidized breast-milk substitutes are to be offered, they need to be distributed efficiently to the mothers who are eligible for them, but controlled to prevent spillover to mothers who are HIV negative or of unknown status.*

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