



WHO briefing notes for UNGASS on HIV/AIDS

Prevention of mother-to-child transmission of HIV infection:

Review of evidence



A major public health problem

HIV among children is a growing problem, particularly in the countries hardest hit by the AIDS epidemic. The overwhelming majority of infected children acquire the infection from their mothers. Prevention of mother-to-child transmission of HIV is now a high priority and has been the rallying point for enhanced prevention efforts.

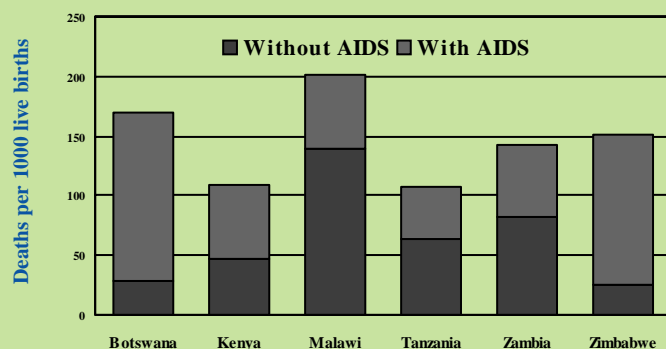
While HIV infection among infants is a problem all over the world, it is most acute in sub-Saharan Africa where nearly 80% of all infected children live.

HIV/AIDS among children in the year 2000

| | Total in the world | Per cent of total in sub-Saharan Africa |
|--|--------------------|---|
| Children living with HIV/AIDS | 1.4 million | 79% |
| Children who died of HIV/AIDS in the year | 500,000 | 88% |
| Children newly infected with HIV in the year | 600,000 | 87% |

Source: UNAIDS/WHO December 2000

Estimated impact of AIDS on under-5 child mortality rates in selected African countries in the year 2010



Source: US Census Bureau - UNAIDS/WHO 2000

HIV/AIDS is wiping out progress in improving health and extending life expectancy. By 2010, it is estimated that under-5 mortality rates could double in some countries due to the impact of AIDS.

Timing and risks of transmission

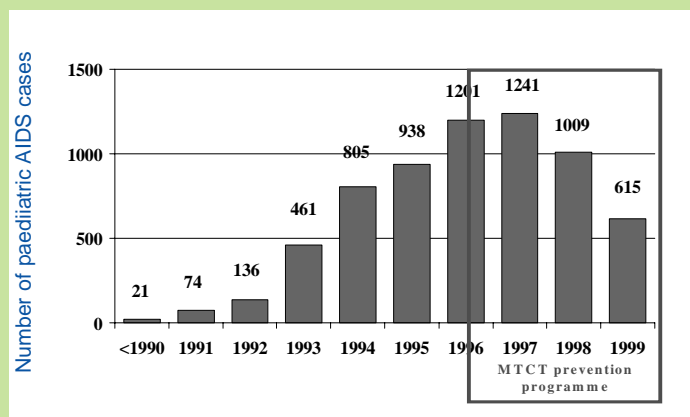
In the absence of interventions, rates of mother-to-child transmission of HIV can vary from 15 to 30% without breastfeeding and reach 30 to 45% with prolonged breastfeeding. Studies have shown that transmission can take place during pregnancy, labour or delivery and the breastfeeding period, and rates of transmission have been estimated as follows:

| | Rates of transmission |
|---------------------------------------|-----------------------|
| During pregnancy | 5 to 10 % |
| During labour and delivery | 10 to 20 % |
| During breastfeeding | 5 to 20 % |
| Overall without breastfeeding | 15 to 30 % |
| Overall with breastfeeding < 2 months | 25 to 35 % |
| Overall with breastfeeding > 2 months | 30 to 45 % |

Source : de Cock, JAMA 2000

A public health solution that works

The rate of transmission of HIV from infected pregnant women to their infants has decreased to less than 2% in industrialized countries, through the use of highly effective antiretroviral drug regimens for prevention of vertical transmission or maternal treatment, in combination with elective caesarean section and replacement feeding from birth. Some developing countries such as Thailand have also succeeded in reducing numbers of children infected with HIV. Achieving similar results in other developing countries, some of which are hardest hit by the AIDS epidemic, will require addressing many challenges and solving some key problems.



Source: MoPH, Thailand, 2000

Thailand: since the implementation of programmes to prevent mother-to-child HIV transmission, the number of AIDS cases among children 0 to 4 years old has decreased significantly

A three-pronged strategy to reduce the number of children infected with HIV

Based on an in depth review of the evidence, and recognising the many complexities of the issue, WHO and its partners have defined a three-pronged strategy for the prevention of mother-to-child transmission of HIV.

1 - Primary HIV prevention, especially among young women

The first prong of the strategy is the prevention of HIV infection, especially in young women. Avoiding infection in women is the most effective way to prevent vertical transmission to infants. Some aspects of primary prevention are particularly important for prevention of mother-to-child transmission. Acquisition of HIV during pregnancy or while breastfeeding is frequent in some areas. Viral loads are higher and infectivity is greater in the initial stage of infection, so pregnant or lactating women with recently acquired infection are at even greater risk of transmitting HIV infection to their infant. HIV prevention efforts should also address the needs of pregnant and lactating women.

2 - Prevention of unintended pregnancy among HIV-infected women

Avoiding unintended pregnancy in women who are infected with HIV is the second prong of the strategy. Reinforcing reproductive health and family planning services that help all women avoid unintended pregnancy is an essential component of this strategy. In fact, most women of child-bearing age in developing countries do not know whether they are infected or not. Therefore, another essential component is expanding the availability of quality voluntary counselling and testing, so that more women can know whether they are infected and can use this information in making decisions about their future reproductive life.

3 - Specific interventions to reduce HIV transmission from HIV infected women to their infants

A package of interventions is needed to prevent transmission of HIV from an infected pregnant woman to her infant. This package should include antiretroviral therapy, safe delivery practices and infant feeding counselling and support. As these interventions must only be offered to women with known HIV infection, the availability of voluntary counselling and testing is essential.

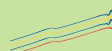
The framework for action to prevent mother-to-child transmission of HIV

All women → *prevent HIV infection*

HIV infected women → *prevent unintended pregnancy*

HIV infected pregnant women → *prevent transmission to infants*

Specific interventions to prevent mother-to-child transmission of HIV



1 - Use of antiretroviral drugs

A number of approaches to reducing vertical transmission of HIV have been evaluated over the past decade. The most effective interventions have involved the use of antiretroviral drugs, started at different stages of pregnancy and administered in different ways. The first antiretroviral regimen shown to reduce vertical transmission involved a long and demanding course of zidovudine for the mother and the child and reduced the rate of HIV transmission from 25% to 8%. Studies conducted in Thailand and several African countries confirmed that short course regimens better suited to developing country realities were also effective, though somewhat less so.

An early study of antiretroviral therapy based on zidovudine administered to the mother in the second and third trimester of pregnancy, intravenously during delivery and to the infant for six weeks of life reduced the risk of HIV transmission by 67%. Other shorter regimens of antiretrovirals more affordable and more manageable for application in resource-constrained settings are being developed. Trials have shown that short regimens of zidovudine, alone or in combination, or of nevirapine, can reduce vertical transmission of HIV by up to 50%.

Toxicity. For women and infants who are administered antiretroviral drugs for the prevention of mother-to-child transmission, the risk associated with exposure to one or more drugs must be weighted against the benefit of reducing the risk of transmission to infants. Short-term safety and tolerance of the antiretroviral prophylactic regimens have been demonstrated in all controlled clinical trials of prevention of mother-to-child transmission of HIV. Research on long-term safety is ongoing.

Resistance: Apparently reversible resistance to antiretrovirals (especially nevirapine) has been observed among women and their children who were given the drugs to prevent vertical transmission. The implications for the spread of resistant virus in the population, the course of the mother's and the child's disease, and their future treatment options, are not known.

Scientists concluded that the benefits of antiretrovirals drugs in reducing mother-to-child transmission greatly outweigh any potential adverse effects of drug exposure and concerns related to development of drug resistance, and that their use should not be restricted to research settings or pilot projects.

Source: WHO/UNAIDS/ UNFPA /UNICEF Technical Consultation – October 2000

2 - Safe delivery practices

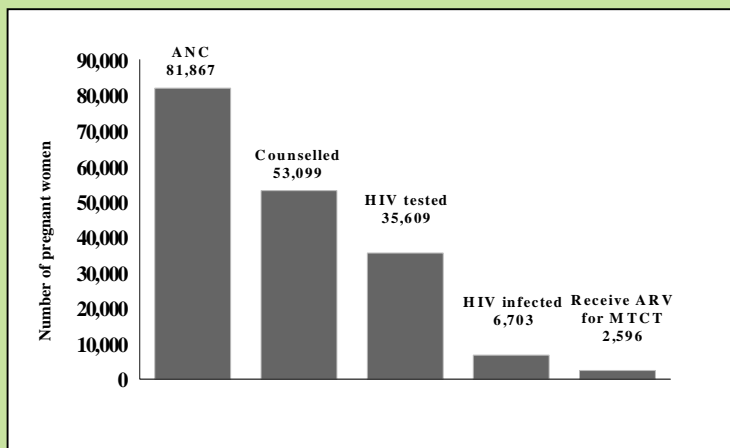
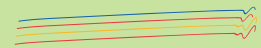
Elective caesarean section has been shown to be effective in reducing the risk of vertical transmission of HIV. However, it is not an appropriate intervention in developing countries because of availability, cost and risk of complications. Invasive obstetrical procedures such as artificial rupture of membranes, fetal scalp monitoring and episiotomy may increase transmission of HIV from mother to infant. Limiting their use to cases of absolute necessity might further reduce transmission.

All HIV-infected mothers should receive counselling, which includes provision of information about the risks and benefits of various infant feeding options, and guidance in selecting the option most likely to be suitable for their situation. Replacement feeding should only be considered when it is acceptable, feasible, affordable, sustainable and safe. Otherwise, exclusive breastfeeding is recommended during the first months of life.

3 - Safe infant feeding practices

Breastfeeding can account for an additional risk of HIV transmission of 10–20%. Lack of breastfeeding however can expose children to increased risk of malnutrition or infectious diseases other than HIV. While avoiding breastfeeding would seem logical when the mother is HIV-infected, striking the necessary balance of risks is in fact more complicated.

Experience from pilot mother-to-child transmission prevention projects



Source: UNICEF PMTCT newsletter N°1 - 2001

Voluntary counselling and testing and uptake of mother-to-child transmission prevention interventions during 1999-2000: Results from 9 African countries (Burundi, Botswana, Côte d'Ivoire, Kenya, Rwanda, Tanzania, Uganda, Zambia, Zimbabwe)

Since 1998, UNICEF has supported the implementation of pilot projects for preventing mother-to-child transmission in selected countries most affected by HIV. Despite the fact that preliminary results have in general shown a low use of the interventions in the start-up phase of these projects, many valuable lessons have been learned.

Specifically, regarding low use of the interventions, the pilot projects documented:

- A substantial difference between the number of women who attended the antenatal care services and the number who received counselling and were offered HIV testing. This difference is mainly attributed to understaffed health centres, poorly motivated health workers or both.
- A substantial difference between the number of women who received counselling and who actually underwent HIV testing. This difference is mainly attributed to poor quality counselling and women's fear of stigma and discrimination associated with low levels of community awareness and mobilisation, and lack of trust in the health care system.
- A substantial difference between the number of women tested and found to be HIV infected and the number who received an antiretroviral drug. This difference is due to the low rate of return for test results, for the same reasons mentioned above. Some women are also identified as infected with HIV too late in their pregnancy to receive a regimen using any antiretroviral other than nevirapine.

On the other hand, some encouraging results were also reported in these pilot projects. Some sites achieved high acceptance rates for counselling (close to 100%) and for HIV testing (75 to 80%). These achievements are believed to be related to:

- good quality health care services;
- consistent availability of essential supplies;
- upgraded antenatal services, with good quality counselling;
- effective communication efforts to raise community awareness and mobilisation;
- use of rapid HIV testing technologies allowing same day provision of test results to clients;
- linkages to care and support services for HIV infected individuals and their families.

Challenges to implementation

- The numbers of HIV infected women and of unintended pregnancies among HIV-infected women continue to increase. If this situation continues unchecked, health systems will be unable to cope with the growing need for specific interventions for prevention of mother-to-child transmission.
- Access to antenatal care is limited, and when used, often restricted to one visit only, or happens late in pregnancy, and may not be associated with skilled assistance by a health care worker at the time of delivery. Based on WHO estimates, the percentage of women receiving antenatal care, defined as at least one visit, ranges from 20 to 99 per cent in Africa, with an average of 62%. The percentage of women having a professionally attended delivery ranges from 2 per cent to 99 per cent, with an average of 36%. A review of trends over the past decades shown that in many of the most affected countries, use of antenatal care and skilled assistance at delivery has stagnated or even declined.
- Many health systems are not yet ready to accommodate a complex set of interventions. A program of voluntary counselling and testing, use of antiretroviral drugs and counselling on infant feeding practices can only be set up where there is an efficiently functioning health system with certain key services. Areas of concern include inadequate human resources, insufficient space to provide private and confidential counselling, poor laboratory support, and inadequate systems for the procurement and distribution of supplies.
- Access to voluntary counselling and testing is very low. Voluntary counselling and testing is an obligatory entry point for specific interventions for preventing mother-to-child transmission, but is rarely available. It is estimated that less than 5% of the population in Africa has access to these services. In addition, many women agree to HIV testing but fail to return for their results.
- Stigma and discrimination impede uptake of key interventions. Fear of untoward consequences, including violence, has been identified as an important reason for women not accepting HIV testing or not returning for their test results. Some approaches to reduce mother-to-child transmission, such as replacement feeding or taking daily antiretroviral drugs at home during pregnancy, are visible and uncommon. They imply that a woman is infected and force her to disclose her infection to her partner, her family or her community.
- Community knowledge about approaches to prevent mother-to-child transmission is inadequate. Pregnant women attending antenatal clinics often do not opt for HIV testing or accept prevention interventions, failing to see its benefits.
- Care and support services are rarely available. Few infected women and children in the countries most affected have access to appropriate care including the prevention and treatment of opportunistic infections, treatment with antiretroviral drugs, and psychosocial and nutritional support. Support services for the growing number of orphans lag sadly behind the need.

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An extensive review document will be soon available.

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