Preventing mother-to-child transmission of HIV in Africa

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One of the most chilling, if relatively unknown impacts of the acquired immunodeficiency syndrome (AIDS) epidemic is that it is eroding the improvements in child survival achieved in Africa over the past few decades.

We do not wish to minimize the seriousness of the problem in other parts of the world, but it is in Africa where its tragic proportions stand out most starkly. Last year, for example, over 0.5 million neonates were infected by their mothers with human immunodeficiency virus (HIV). Of the ten countries worldwide with the greatest numbers of infected children, the top nine are all in sub-Saharan Africa: these range from Ethiopia in first position with an estimated 140,000 HIV-infected children, through Nigeria with 99,000, South Africa, United Republic of Tanzania, Uganda, Kenya, Zimbabwe and Mozambique, to the Democratic Republic of Congo with 49,000 infected children. According to the United Nations Population Division, 64% of all deaths of under-5-year-olds in Botswana will be caused by AIDS between 2000 and 2005. The projected figure for South Africa and Zimbabwe is 50% and for Namibia, 48%.

We know all too well how much of this is happening. HIV is acquired from the mother around the time of birth or through breastfeeding. The overall risk of mother-to-child transmission is about 15–25% among HIV-positive women who do not breastfeed. The risk is 25–43% among HIV-infected women who breastfeed — and the majority of African women breastfeed.

What can we do about it? Well-known interventions such as Caesarean sections and alternative feeding options can reduce a significant percentage of transmission, as can antiretroviral drugs such as zidovudine (AZT), lamivudine (3TC) and, more recently, nevirapine — albeit expensively. Where the financial resources and technical infrastructure exist, and where HIV testing can determine a pregnant woman’s serostatus, these interventions have brought mother-to-child transmission of HIV under a reasonable level of control. Even for many resource-constrained countries, the picture became considerably brighter in 1998 when a clinical trial in Thailand demonstrated the efficacy of a short zidovudine regime with significantly reduced drug costs and management requirements — and then brightened even more this year when a trial in Uganda found that a single oral dose of nevirapine given to a seropositive woman during labour, followed by one to her baby within 3 days of birth, was of comparable efficacy to a short course of AZT.

Unfortunately, “resource-constrained” is at best a cruel euphemism when applied to much of sub-Saharan Africa, where most HIV-positive women do not know and have little chance of testing their serostatus. Even when their serostatus can be determined, the cost of the necessary drugs and of breast-milk substitutes — and the means to manage the interventions — are beyond the current capacity of many countries.

That having been said, and as discussed by Berer in this issue of the Bulletin (pp. 871–877), Africa is far from powerless to prevent mother-to-child transmission of HIV — given the sin qua non of commitment from national political leaders; significantly increased technical and financial resources; coordination of international support; integration into existing health services; and a combined approach to the problem (1). Political commitment cannot be assumed, but is growing rapidly, and the recently announced International Partnership Against AIDS in Africa may provide the needed leverage to focus new levels of financial support. On the coordination front, an Inter-agency Task Group on Mother-to-Child Transmission, including the UNAIDS Secretariat, UNFPA, UNICEF and WHO, was created in 1998 specifically to provide coordinated guidance to the work in countries of the United Nations system.

Much of what needs to be done is nonclinical. In fact, the single most cost-effective thing that can be done to prevent mother-to-child transmission of HIV is to stop parents from becoming infected. That will take prevention efforts on a wider and more intense scale than has been carried out yet, and a change in what we consider prevention, moving from a narrow medical focus to one of social change. It will also mean raising the ability of all women, whether or not infected with HIV, to make decisions about their reproductive and sexual health, including the avoidance of unplanned and/or unwanted pregnancies.

In view of different perspectives from which mother-to-child transmission of HIV must be addressed, the “package” of measures shown below should be implemented:

- Expansion and strengthening of family planning and information and services, as well as HIV prevention activities.
- Early access to quality antenatal care from trained health workers.
- Voluntary counselling and HIV testing for women and their partners.
- Provision of antiretroviral medication to prevent HIV transmission from seropositive women to their babies.
- Improved care during labour, delivery and the postpartum period.
- Counselling for HIV-positive women on infant feeding choices, making replacement feeding available when needed, and supporting women in all their feeding practices.

With the support of UNAIDS’s co-sponsors and secretariat, pilot projects implementing such interventions have started in a number of African countries and are at various stages of development. They should furnish a great deal of practical information about how to scale up programmes, particularly the voluntary counselling and testing and replacement feeding components of the package — both of which are crucial in areas where the risk associated with replacement feeding and discrimination towards HIV-infected women is high.

We have high hopes for these projects, not only in meeting their specific objectives but in providing some important spin-off benefits, most notably: increased access to voluntary counselling and HIV testing; more people knowing their infection status; and strong reinforcement of prevention messages by allowing people to act on the basis of their test results.

In parallel with the implementation of the pilot projects, it will also be necessary

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to develop more effective interventions. Let us not forget that the short-course regimens available today reduce HIV transmission only about 50% from baseline transmission rates without antiretroviral intervention, as compared to an approximately 70% reduction — from 25% to 8% — with a long zidovudine regimen used in North America and Europe. The subsequent widespread use of antiretrovirals in industrialized countries has reduced transmission rates to less than 5% in such countries. There is therefore ample room for improvement.

In our view, two strategies need urgent investigation. The first is the use of very short combination regimens to knock down early transmission rates. A combination of nevirapine and AZT/3TC would seem the logical first candidate regimen to study, because both have proven efficacy in mother to child transmission. The second is to investigate different approaches to the problem of HIV transmission through breastfeeding. This will require operational research on different breastfeeding replacement approaches, but also trials on the use of antiretrovirals in the newborn until the end of breastfeeding, because not all women will be able to give replacement feeding.

Ultimately, demonstrating success in reducing mother-to-child transmission of HIV should be a powerful means of effecting change — not only to save children’s lives and reduce the impact of HIV on families and communities, but to strengthen maternal and child health services in general. Above all, it will provide a much-needed lifeline of hope to the tens of millions of African men, women and children trying to cope with the AIDS crisis.

Reference