



PREVENTING TRANSMISSION OF HIV FROM MOTHER TO CHILD — IS SOUTH AFRICA READY AND WILLING?

David Wilkinson, James McIntyre

From a purely epidemiological perspective the transmission of HIV from a mother to her child (MTCT) is irrelevant, as most infected children die before being able to transmit the virus further. MTCT is therefore effectively a dead-end for transmission. Of course as public health practitioners this does not concern us, as we are charged with protecting the health of all, and the lives of children are especially valued.

Over the past decade, a wide range of studies in developed and developing countries have demonstrated MTCT of HIV, and that it occurs in between 20% and 40% of HIV-infected pregnant woman, depending on setting.¹ The risk factors for and timing of transmission have been defined, and more recently effective interventions have been developed. In 1994 the landmark ACTG 076 trial done in the USA and France² showed that a lengthy, complex and expensive regimen of zidovudine (ZDV) given through pregnancy, in labour and to the newborn reduced MTCT of HIV by 67% in women who did not breast-feed. Widespread implementation of this regimen in the USA³ and other countries including France⁴ has led to a marked reduction in the incidence of paediatric AIDS — a public health triumph.

In March of this year the results of the first trial of a shorter course of ZDV, designed to test the efficacy of a regimen that might be implementable in parts of the developing world, were reported.⁵ A 4-week course of ZDV given orally in late pregnancy and in labour to women in Thailand who did not breast-feed showed that MTCT was reduced by 51% (95% confidence interval 15 - 71%). We were both invited to participate in a meeting called by the Joint United Nations Programme on HIV/AIDS (UNAIDS) to consider how these results should be used to plan for programme implementation

David Wilkinson is an epidemiologist with the Medical Research Council and is based in rural Hlabisa, KwaZulu-Natal. Having worked as a doctor in rural South Africa since 1987, his main interests are in the control of infectious diseases. James McIntyre is an obstetrician in Johannesburg whose recent work has focused on strategies to reduce HIV transmission from mother to child, particularly in poor urban areas. He is also a consultant to UNAIDS and UNICEF.



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of interventions to reduce MTCT of HIV. Is South Africa ready — and willing — to reduce the number of children who are infected with HIV by their mothers?

UNAIDS estimated that globally in 1997, 1.1 million children were living with HIV, 590 000 newly infected.⁶ The Department of Health has used data from the national anonymous antenatal surveys to estimate that 58 000 babies were born with HIV infection in South Africa in 1996.⁷ KwaZulu-Natal is the most heavily affected province. We have estimated that in Hlabisa — a health district typical of KwaZulu-Natal — 657 new paediatric HIV infections occurred in 1997.⁸ What can be done to reduce this burden?

HIV is transmitted from mother to child in three distinct phases: antepartum (about 5%), intrapartum (15%) and postpartum (10%), assuming an average 30% MTCT transmission rate. If HIV-infected women can safely avoid breast-feeding they should, and this will reduce the risk of MTCT by about one-third.⁹ In Soweto MTCT was much lower in women who chose to formula-feed (25%) than in those who chose to breast-feed (42%), without any increased morbidity or mortality attributable to formula-feeding (Glenda Gray — personal communication). Women who can formula-feed should also be offered a short course of ZDV, and this will further reduce their risk by about one-half.⁵ Unfortunately, we do not yet know the efficacy of short-course ZDV in women who have no choice but to breast-feed. Benefit in this group will almost certainly be smaller than in the formula-feeding group because ZDV use will create a larger cohort of uninfected, and therefore susceptible, babies who will subsequently be exposed to HIV through breast-milk. The (perhaps unlikely) worst-case scenario is that almost all the



benefit conferred by ZDV will be reversed by breast-feeding.

Following release of the Thai trial the manufacturers of ZDV, Glaxo Wellcome, announced a cut in the international price of the drug by 75%. This is equivalent to a 50% or so reduction in the South African price to around R390 per woman, although the price details are under negotiation.

Projections of the cost-effectiveness and affordability of resources needed to implement an effective programme to reduce MTCT in Hlabisa have been made by a group of researchers working through the Hlabisa-Liverpool HIV Link.⁸ Short-course ZDV plus selective avoidance of breast-feeding is likely to be a cost-effective intervention. Our best-case projection was that up to 37% of paediatric HIV infections in the district might be averted, at a total cost of around R1.2 million, equivalent to approximately 5% of the total district health budget. The cost per paediatric HIV infection prevented was about R4 500, equivalent to R290 per discounted year of life gained. In comparison with other (established) public health interventions such as childhood immunisation, cost-effectiveness is similar. Put simply, this would not be a bad way of spending money. However, three other questions need to be asked before doing so:

- are there better ways of spending it?
- is the money there to be spent?
- do we have the skills and resources to spend it?

Simplistically, the answers are 'yes', 'no' and 'perhaps'. Yes, more cost-effective ways of preventing HIV infection do exist: cost per disability-adjusted life-year (DALY) saved from improved sexually transmitted disease syndromic management is estimated at \$10 (R45).¹⁰ With the substantial over-spend by provincial health departments¹¹ in the last financial year, money clearly is not available within current budgets for new, expensive interventions. Could political pressure ensure that new money is provided? Will South African women — and men — apply this political pressure? In the Hlabisa best-case projection, about R150 would need to be spent per woman screened. As approximately 1.4 million women become pregnant each year in South Africa,⁷ the government would need to find at least an extra R210 million to fund a national programme.

Even if the money is made available, serious questions must be raised about how effectively such a national programme could be implemented. Existing staff would need to be trained in HIV counselling and midwifery skills, new staff would need to be recruited, health facilities would need upgrading to accommodate the increased numbers delivering under health worker supervision, and HIV testing would need to be done on-site in many antenatal clinics. None of these steps would be quick or easy.

The 1997 South Africa Health Review¹¹ reveals that the

country's health services are undergoing a painful process of transition. Little is known about the status of reproductive health services in the country, but it is probably quite patchy: comprehensive maternal and child health services are said to exist in between 13% and 80% of clinics in the different provinces. Indications from some surveys are that a high proportion of pregnant women attend antenatal services for at least one visit, but that fewer deliver in a health service.^{12,13} Postnatal visits are considerably less frequent.¹⁴ An assessment of reproductive health services across the country, conducted in 1994 by the Reproductive Health Task Force, South African Ministry of Health, and the Human Reproduction Programme (HRP) of the World Health Organisation, Geneva, highlighted the need to improve service quality as well as access to services.

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What is the way forward? We propose a three-stage parallel process. The first would be a process of national consultation and consensus building that aims to develop policy around a national programme for the reduction of MTCT of HIV. This might include provision of antiretroviral drugs, provision of formula feeds, development of training packages, setting standards for HIV counselling and testing, and so on. The second stage

would be the establishment of several implementation sites representative of different settings throughout the country, so that we can 'learn by doing'. These pilot sites would be given the task of developing a programme to offer HIV counselling and testing to pregnant women, to provide short-course ZDV to HIV-infected women who want it, and to offer alternatives to breast-feeding to those women who are considered able to formula-feed safely. The sites would document the obstacles to programme implementation and would develop strategies to overcome these obstacles. Potential sites include those involved in trials of perinatal antiretroviral drugs, including Durban and Soweto. Rural sites such as Hlabisa or its neighbouring districts could also be included, making use of the resources of the Africa Centre for Population Studies and Reproductive Health. The third stage would be ongoing research to develop effective antiviral regimens that would allow breast-feeding to continue, and its documented benefits to be maintained, or to test safe modifications of breast-feeding, such as early weaning.

It is clear that any national programme will fail without the concurrent strengthening of South Africa's primary health care system. Indeed, simply going ahead now and providing ZDV in those sites that can already deliver it would merely perpetuate existing inequities — inequities between public and private sectors, urban and rural areas and areas with different resource levels, racial inequities, and so on. The HIV/AIDS epidemic is the greatest threat to this country's public health, and with up to one-third of the young adult population



infected in some parts of the country, it threatens the very fabric of South African society. There is now a very real opportunity to start implementing an intervention that will reduce the number of children infected with HIV. Done properly, this implementation could also be used to strengthen the health system itself.

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A CHOLERA OUTBREAK AND CONTROL IN A RURAL REGION OF SOUTH AFRICA

Eugene Athan, Steven Donohue, David Durrheim

The outbreak of cholera that occurred in the Mpumalanga lowveld early in 1998 highlights important lessons for cholera management and control in South Africa. *Vibrio cholerae* O1, El Tor biotype causes epidemic, life-threatening diarrhoea worldwide, with a high proportion of asymptomatic cases and carriers compared with the Classic biotype.¹ Currently Mozambique is experiencing a large El Tor epidemic that was confirmed in Maputo during August 1997, and totalled in excess of 10 000 cases by the end of 1997.

Mpumalanga's lowveld region is a predominantly rural area of South Africa, bordering Mozambique and Swaziland, and many Mozambican economic migrants are recruited here as casual labour on banana and sugar plantations.

A young Mozambican man was the index case of a localised outbreak in Shongwe district. He arrived from Maputo on 23 February 1998, and found casual employment on a banana plantation situated on the northern bank of the Lomati River. He developed profuse watery diarrhoea on the night of arrival, and was discovered shocked and partially submerged in the river the following morning. After he had been resuscitated at Shongwe Hospital, *V. cholerae* O1, El Tor, Ogawa strain was cultured from his stool.

Phiva village (population 8 000) is located on the opposite bank of the Lomati. Water for treatment and supply to village

Dr Eugene Athan is an Australian specialist physician, sub-specialising in infectious diseases. He recently returned to Australia after a 2-year period at Shongwe Hospital, during which he concentrated his efforts on TB, malaria, infection control and community AIDS prevention projects. Dr Steven Donohue is a community health specialist working in the Shongwe and Tonga districts. His main interest is the support of rural primary health care programmes. Also Australian, he came to South Africa in 1989, is now married to a South African and has two children. He claims to be 'reversing the brain drain'. Dr Dave Durrheim is the Consultant in Communicable Disease Control with the Mpumalanga Department of Health. A South African who did postgraduate training in public health and tropical medicine in the UK and Australia, he enjoys innovating with public health tools for achieving effective communicable disease control. His passions are his family, his faith, vector-borne diseases and the great South African outdoors.