Prevention of Mother-to-Child Transmission of HIV in Kenya, Tanzania and Uganda

The Context

Worldwide 700 000 children under 15 become infected with HIV every year, most of them via their mothers – at birth or through breastfeeding. In east and southern Africa, an estimated 20%-30% of pregnant women are HIV-positive and up to 10% of all infants are born with HIV or acquire it from breast milk. About 20-25% of infected children die before the age of 2 and 60-70% die before 5.

UN guidelines state that mother-to-child transmission of HIV (MTCT) is most effectively reduced by primary prevention of HIV among women of reproductive age and the prevention of unintended pregnancies among women living with HIV. The guidelines also call for measures to prevent MTCT during pregnancy, delivery and breastfeeding, and sustained care, treatment and support for women living with HIV, their children and families.

Prophylaxis with antiretroviral drugs during or shortly after birth considerably reduces the likelihood of MTCT. A single dose of nevirapine taken by the mother during labour and a single dose of nevirapine syrup given to the infant within 72 hours of birth reduces the probability of this by about 50%. Safe delivery practices and safer methods of infant feeding – coupled with sustained care, antiretroviral treatment (ART) and support programmes for HIV-positive pregnant women and family members – further reduce the risk of transmission.

Sites, goals and implementation

In 2001, the German government commissioned the German Agency for Development and Technical Cooperation (GTZ) to partner with national ministries of health and local health authorities to implement a six-year project on prevention of mother-to-child transmission (PMTCT) and antiretroviral treatment of HIV in three east African countries where these health services were virtually unavailable: Kenya, the United Republic of Tanzania and Uganda. The project was coordinated by the Institute of Tropical Medicine, Charité Medical School, Berlin; nationally, it worked through close partnerships with officials at both the Regional and District levels. In 2006, it included 11 health units in Kenya's Nyanza Province, 23 health units in Tanzania's Mbeya Region and ten health units in the Kabarole, Kamwenge and Kyenjojo Districts of western Uganda.

To download the full version of this report and modules and materials developed by this project, go to http://hiv.prg.googlepages.com/reviewedpublications

Drama group performance about PMTCT in Mbeya, Tanzania

German HIV Practice Collection

The German HIV Practice Collection is edited by the German HIV Peer Review Group (PRG), an initiative of AIDS experts working in the context of German and international development cooperation. Approaches that are published in this collection have been peer-reviewed and approved by PRG members on the basis of a set of criteria for 'good practice'.

The BMZ-commissioned project "Strengthening the German contribution to the global AIDS response" serves as Secretariat to the PRG and moderates its internet platform at http://hiv.prg.googlepages.com/home

PRG membership is open to AIDS experts and development cooperation planners and practitioners with an interest in German contributions to the AIDS response in developing countries. For more information, contact the Secretary of the Peer Review Group at aidsprg@gtz.de

Peer-reviewed

gtz Strengthening the German contribution to the global AIDS response

On behalf of Federal Ministry for Economic Cooperation and Development

The project unfolded in two phases:

The main goal of the first phase (2001-2004) was to ensure that "selected health services offer interventions to prevent HIV transmission from mother to child in an efficient and cost-effective manner." Staff attempted to provide a single dose of nevirapine to HIV-positive pregnant mothers and another single dose to each newborn child at all project sites. Services were provided through existing antenatal care (ANC) clinics, fully integrated into the existing health structures and implemented by national, district and local health managers and health workers. Pregnant women presenting at participating ANC clinics were offered pre-HIV-test counselling, HIV-testing and post-test counselling. Those women with a positive HIV-test result were then offered a single dose of nevirapine and ongoing support and counselling regarding general health matters as well as post-delivery follow-up. To provide these and other services, health services and facilities were upgraded and health workers were trained according to standards set by the World Health Organization (WHO).

The overall goal of the second phase, (beginning 2003-2004), was to expand the project to introduce nationally and WHO-recommended measures "for prevention, treatment and care of HIV at local, regional and central levels by the health systems of the targeted countries." The expanded approach included sustained ART to HIV-positive women, members of their families, and health personnel at participating health units, who needed this treatment - a method known as PMTCT-Plus. As child health cannot be isolated from maternal health, these expanded services are critical. The PMTCT-Plus Programme was implemented in 2003 at Fort Portal Hospital in Uganda, Migori District Hospital in Kenya and Ruanda Health Center in Tanzania.

Results

Uptake of PMTCT: Between March 2002 and December 2006, 131 229 new ANC clients made use of health services at facilities participating in the programme in Kenya, Tanzania and Uganda. Of this number, 94 492 women (72%) women were counselled on PMTCT and related issues, and 67 542 (52%) agreed to be tested. In all, 10 431 of the women who agreed to be tested (15%) were HIV-positive. A total of 8399 were enrolled in the PMTCT Programme, and as of 2006, 4356 women had taken nevirapine and 1847 were being followed by health workers – in general, for 18 months after delivery. Many other women registered in the programme were in earlier stages of the pregnancy and had not yet delivered or had nevirapine prophylaxis.

PMTCT outcomes: As women dropped out of the PMTCT Programme at all stages, the number of women participating at each stage declined progressively – from HIV counselling through testing, enrolment and so on. Consequently, nevirapine usage was not as high as it could have been, considering the relatively high number of HIV-positive women who sought ANC at participating facilities. It should also be noted that the nevirapine tablets were handed to the pregnant women at different points in time and administered according to different country guidelines. In all countries, however, the women were instructed to take the tablets at onset of labour, in accordance with WHO guidelines. Nevirapine intake could clearly be documented in 39% of the participants who swallowed the drug in the presence of a health worker. Among women who were breastfeeding exclusively, the HIV-transmission rate in children at 6 months was about 14% – an encouraging outcome when one recalls that without interventions, about 30% of children born to HIV-positive women will be infected, and that single-dose nevirapine reduces this risk by 50% (lowering the rate of MTCT to 15%).

Uptake of antiretroviral therapy: The PMTCT-Plus Programme provided a standard regime recommended by WHO – two nucleoside reverse transcriptase inhibitors (NRTIs) and one non-nucleoside reverse transcriptase inhibitor (NNRTI) – though the medicines varied according to national guidelines: Uganda used zidovudine, lamivudine and efavirenz; Tanzania used zidovudine, lamivudine and nevirapine; and Kenya went with stavudine, lamivudine and nevirapine. As well, syrup formulations of second-line antiretroviral medicines were needed for children. More expensive second-line drugs were needed in about 14% of

New and old antenatal clinic, Migori District Hospital, Kenya

patients, who experienced contraindications, concomitant diseases such as tuberculosis, side effects or treatment failure. Second-line drugs were also needed for children in the form of syrups. Some 500 individuals received ART under the PMTCT-Plus Programme.

ART outcomes: These were in line with international results. About 79% of those who began ART were still receiving it after six months. As ART became more widely available in the project countries, the PMTCT-Plus component was integrated into the national ART programmes.

Research

The project included extensive operational and biomedical studies using qualitative and quantitative methodologies (see the long version of this report for details). As part of a comprehensive approach, studies attempted to analyse the impact of interventions, influence of different factors on vertical HIV transmission and the feasibility of, and minimum prerequisites for, establishing programmes.

Lessons learnt

Integrating PMTCT with antenatal care expands access. A majority of HIV-positive pregnant women can gain access to PMTCT services when these are fully integrated with established structures for antenatal care. The number of pregnant women who received HIV-counselling and testing and who went on to accept antiretroviral prophylaxis increased steadily during the project, proving the feasibility of PMTCT, including the use of single-doses of nevirapine for mother and infant in settings with few resources.

Antiretroviral therapy is also feasible. The project confirmed once again that ART is feasible in resource-poor settings and can produce treatment outcomes comparable to those in industrialized countries. As well, the full integration of PMTCT programmes with national guidelines and structures greatly contributes to their sustainability.

Research is needed on uptake of more complex regimens. International and national PMTCT guidelines now stipulate that single-dose nevirapine is the minimum standard and recommend where possible a prophylactic regimen in pregnant women of triple combination of zidovudine (AZT), nevirapine (NVP) and lamivudine (3TC), and in the newborn infant, the dual combination of zidovudine and nevirapine. In Tanzania and Kenya, these new recommendations have yet to be translated widely into practice, owing in part to logistic requirements, and health workers are not convinced that the use of these more complex drug regimens will encourage more women to take the medicines as prescribed by PMTCT programmes. Monitoring and evaluation coupled with field-based research are needed, therefore, to assess the impact of the shift to more complex regimens, in these and other countries.

High drop-out rates should be addressed. The overall rate of nevirapine coverage is still too low, as women tend to drop out of the PMTCT programmes at all stages. Even though a single dose of nevirapine for mother and infant is by far the simplest medical intervention to reduce vertical transmission of HIV, many

women drop out before they and their infants benefit from this. Further research is, therefore, needed in this area.

Methods must be developed to engage male partners. It is common for men to contract HIV and pass the virus on to their wives and other female partners. Thus, male partners cannot be neglected in programmes aimed at pregnant women. Not only do many male partners of HIV-positive women need counselling, testing and treatment, their support is often essential if their wives or female partners are to follow all the steps of PMTCT and adhere to ART. Kenya, Tanzania and Uganda's PMTCT Programmes have all been partly undermined by a failure to involve more husbands and male partners.

PMTCT, and PMTCT Plus, demand greater human resources. Every pregnant woman counselled, tested or enrolled in PMTCT programmes means additional work for health workers, who are often already overworked. To guarantee the quality of the services, therefore, it is important to provide facilities offering PMTCT-services with enough health workers with the required training.

Safer infant feeding needed. Health workers in resource-limited settings have yet to find an effective way of preventing postnatal transmission of HIV when mothers cannot breastfeed exclusively for six months before early weaning. Further support for alternative feeding options is needed.

Children's formulations of antiretrovirals are badly needed. There are still few sufficient or affordable treatment options for children who cannot take adult formulations of antiretroviral medicines.

Geoffrey Kabagambe

Tools on the internet

The following tools were developed or used by this project and can be downloaded at

http://hiv.prg.googlepages.com/toolboxpmtct

- Toolset 1: Guidelines for PMTCT
- Toolset 2: IEC (information, education and counselling) materials
- Toolset 3: Various monitoring tools
- Toolset 4: Various publications about research conducted by the project

Acknowledgements

We would like to express our gratitude to all those involved in this project, in particular, our partners at the district, regional, provincial and national levels of the health systems in Kenya, Tanzania and Uganda, and our colleagues and the staff of the participating health units in the three countries.

Contacts and credits

Authors: Gundel Harms, Andrea Kunz, Stefanie Theuring
E pmtct@charite.de
Geoffrey Kabagambe, Rose Kabasinguzi
E pmtctgtz_uganda@yahoo.com
Paulina Mbezi
E TGPSH-Mbeya@gtz.de
John Odera
E pmtctmigori_gtz@yahoo.com

Published by:
The German HIV Peer Review Group
Project "Strengthening the German contribution to the global AIDS response"
Responsible: Dr. Thomas Kirsch-Woik
Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH
Dag-Hammerskjöld-Weg 1-5
65760 Eschborn / Germany
E aidsprg@gtz.de
I http://hiv.prg.googlepages.com/home

Text: James Boothroyd

Photos: p.1 Charles Mleleu, p.3 Gundel Harms

Design: www.design-werk.com, Wiesbaden, Germany

Eschborn, November 2007