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Healthier mothers and babies through PMTCT

A publication in the German Health Practice Collection

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Acronyms and Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal care
ART	Antiretroviral treatment
ARV	Antiretroviral
BMZ	Germany's Federal Ministry for Economic Development and Cooperation
CBD	Community Based Distributor
GDC	German Development Cooperation (embracing BMZ, GIZ and KfW)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit*
GTZ	German Technical Cooperation (now GIZ)
HIV	Human Immunodeficiency Virus
MRACP	Mbeya Regional AIDS Control Programme
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
NVP	Nevirapine
PASHA	Prevention and Awareness at Schools of HIV and AIDS
PMTCT	Prevention of mother-to-child transmission of HIV
SRH	Sexual and reproductive health
STI	Sexually transmitted infection
TGPSH	Tanzanian-German Program to Support Health
TI	Traditional Initiator
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNGASS	United Nations General Assembly Special Session on HIV/AIDS
VCT	Voluntary Counselling and Testing
WHO	World Health Organization

* The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH was formed on 1 January 2011. It brings together the long-standing expertise of the Deutscher Entwicklungsdienst (DED) gGmbH (German development service), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German technical cooperation) and InWEnt – Capacity Building International, Germany. For further information, go to www.giz.de.

Healthier mothers and babies through PMTCT

A decade of prevention of mother-to-child transmission of HIV

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German Health Practice Collection

Objective

In 2004, experts working for German Development Cooperation (GDC)[1] and its international and country-level partners around the world launched the German HIV Practice Collection and, in 2010, expanded it into the German Health Practice Collection (GPHC). From the start, the objective has been to share good practices and lessons learnt from BMZ-supported initiatives in health and social protection. The process of defining good practice, documenting it and learning from its peer review is as important as the resulting publications.

Process

Managers of GDC-supported initiatives propose promising ones to the Managing Editor of the GHPC at ghpc@giz.de. An editorial board of health experts representing GDC organizations at their head offices and in partner countries select those they deem most worthy of write-up for publication. Professional writers then visit selected programme or project sites and work closely with the national, local and GDC partners primarily responsible for developing and implementing the programmes or projects.

Independent, international peer-reviewers with relevant expertise then assess whether the documented approach represents 'good or promising practice', based on eight criteria:

- Effectiveness
- Transferability
- Participatory and empowering approach
- Gender awareness
- Quality of monitoring and evaluation
- Innovation
- Comparative cost-effectiveness
- Sustainability

Only approaches meeting most of the criteria are approved for publication.

Publications

All publications in the GHPC describe approaches in enough detail to allow for their replication or adaptation in different contexts. Written in plain language, they aim to appeal to a wide range of readers and not only specialists. They direct readers to more detailed and technical resources, including tools for practitioners. Available in full long versions and summarized short versions, they can be read online, downloaded or ordered in hard copy.

Get involved

Do you know of promising practices? If so, we are always keen to hear from colleagues who are responding to challenges in the fields of health and social protection. You can go to our website to find, rate and comment on all of our existing publications, and also to learn about future publications now being proposed or in process of write-up and peer review. Our website can be found at www.german-practice-collection.org. For more information, please contact the Managing Editor at ghpc@giz.de.

[1] GDC includes the Federal Ministry for Economic Cooperation and Development (BMZ) and its implementing organizations: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and KfW Development Bank. GIZ was formed on 1 January 2011. It brings together the long-standing expertise of DED, GTZ and InWEnt. For further information, go to www.giz.de.

Executive Summary

From the earliest stages of the HIV epidemic, limiting the vertical transmission of HIV from pregnant women to their infants has been a major focus of efforts to reduce the number of new HIV infections. Since the late 1990s, when clinical trials demonstrated the effectiveness of using antiretroviral drugs during and after birth to reduce the likelihood of infection among infants born to HIV-positive mothers, programmes aimed at the prevention of mother-to-child transmission (PMTCT) of HIV have been established and scaled up worldwide, particularly in countries with high HIV-prevalence rates. These programmes, which comprise a package of health and social service measures aimed at women and their families, are now available to more than half of the HIV-positive pregnant women in low- and middle-income countries and have succeeded in bringing about a 24% reduction in the number of children newly infected with HIV between 2001 and 2009.

Despite the promise of PMTCT as a tool for eliminating the vertical transmission of HIV, however, the Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates that 370,000 children under 15 years of age became newly infected with HIV in 2009; over 90% of them acquired the virus from their mothers during pregnancy, at birth or through breastfeeding. Much therefore remains to be done to improve the quality, reach and effectiveness of PMTCT programmes, particularly in countries with the heaviest HIV burdens.

Learning from the successes and limitations of earlier approaches to PMTCT, policy makers and public health experts – led by the World Health Organization – now advocate a comprehensive four-pronged strategy to reduce mother-to-child transmission. This includes HIV prevention services for women of reproductive age to prevent new HIV infections, family planning services for HIV-positive women to minimize unwanted pregnancies, drug-based prophylaxis to prevent HIV transmission to infants, and the provision of antiretroviral treatment to eligible HIV-positive mothers and other family members to promote healthy families.

Moreover, as part of a global push to meet the targets for Millennium Development Goals 5 (maternal health) and 6 (HIV/AIDS), greater attention is now being paid to maximizing the natural linkages which exist between HIV/AIDS interventions, such as PMTCT, and sexual and reproductive health services. PMTCT is increasingly understood as one of a number of services aimed at women and children which are essential for bringing about improvements in maternal and child health.

The German government has supported efforts to prevent the transmission of HIV from mothers to their babies since the earliest stages of the PMTCT era, providing technical support to policy formulation and programme implementation in partner countries. From the start, these efforts have been accompanied by sustained and systematic operational research on the results, supportive factors and challenges for PMTCT programmes.

This contribution to the German Health Practice Collection reviews the history and evolution of German support for PMTCT over the past decade, including an early and innovative PMTCT intervention it implemented in Kenya, Tanzania and Uganda between 2001 and 2009, and examples of HIV prevention, family planning, and HIV-related care and support activities which relate to all four prongs of a comprehensive approach to PMTCT. Activities undertaken in Tanzania are highlighted in this publication, as illustrations of the way in which German-supported health programmes are making important contributions to scaling up universal access to PMTCT and the global effort to eliminate new paediatric HIV infections.

Introduction

PMTCT: A fundamental advance in the global AIDS response

Worldwide it is estimated that 370,000 children under 15 years of age became newly infected with HIV in 2009 (UNAIDS, 2010), and over 90% of them acquired the virus from their mothers during pregnancy, at birth or through breastfeeding. In December 2009, about 2.5 million children worldwide were living with HIV, most of them in Africa. As the period from infection to the development of AIDS and subsequent death is much shorter for children than for adults, in the absence of treatment half of infected children die before the age of two and 60 to 70% die before the age of five (UNAIDS, 2004 & 2006; WHO, 2010b).

Limiting the 'vertical transmission' of HIV is therefore a major focus of efforts to reduce new HIV infections. Without health interventions, the risk of HIV transmission from an infected mother to her child during pregnancy, birth and breastfeeding is between 20 to 45%. However this risk can be reduced to less than 5% among breastfeeding populations, and to less than 2% among non-breastfeeding populations (WHO, 2010b), through a set of interventions known as Prevention of Mother-to-Child Transmission (PMTCT) of HIV. PMTCT comprises a package of measures, including both drug-based medical interventions and complementary health and social services aimed at women and their families. In combination they have the potential to dramatically reduce the transmission of HIV between women and their children.

Over the past 10 years, large investments have been made in scaling up PMTCT services in countries around the world, particularly those with high HIV prevalence rates. These efforts have begun to bear fruit: between 2001 and 2009 there was a 24% drop in the number of children newly infected with HIV worldwide and more than half (53%) of pregnant women living with HIV in low- and middle-income countries received antiretroviral prophylaxis to prevent infection in their infants in 2009 (WHO, 2010a), compared to only 10% in 2004 (WHO, 2009). In Eastern and Southern Africa, home to countries with the highest HIV prevalence rates in the world, 68% of pregnant women living with HIV received antiretroviral medication to prevent mother-to-child transmission in 2009 (UNAIDS, 2010) and several countries in the region have succeeded in extending PMTCT services to at least 80% of pregnant women and their children (WHO, 2010b).

Over time, clinical research and evaluations of early PMTCT programmes have identified newer and more effective ways to prevent infections among infants, even in resource-limited settings, and the promise of PMTCT as a tool for eliminating vertical transmission continues to grow. In its 2010 *Global Report on the AIDS Epidemic*, the Joint United Nations Programme on HIV/AIDS (UNAIDS) refers to PMTCT as a 'fundamental advance in the AIDS response' over the past decade (UNAIDS, 2010: p.78).

Many women in high HIV-prevalence countries are still not reached with PMTCT services or are not treated according to the WHO's recommended drug regimen.

Despite the significant progress which has been made, much remains to be done. Many women living in countries with the heaviest HIV burdens are still not reached with PMTCT services and, of those who are, a significant proportion are not treated according to the World Health Organization's (WHO) recommended drug regimen. There are persistent difficulties in ensuring the regular intake of medications by mothers and children – a

fact which reduces the effectiveness of PMTCT and contributes to drug resistance in antiretroviral treatment. The quality of care within PMTCT programmes also needs to receive more attention.

Until recently there has been a tendency to focus greatest attention on the medical aspects of PMTCT – the provision of drug prophylaxis to limit the transmission of HIV to infants. Learning from the successes and limitations of earlier approaches, policy makers and public health experts now advocate a broader, more integrated strategy to reduce mother-to-child transmission, including HIV prevention services for women of reproductive age, family planning services for HIV-positive women, and the provision of full antiretroviral treatment to eligible HIV-positive mothers (WHO, 2010a).

Moreover efforts are increasingly being made to link PMTCT services with reproductive and other health services for women, rather than addressing PMTCT in isolation (WHO, 2010b). As part of a global push to meet the targets for Millennium Development Goals 5 (maternal health) and 6 (HIV/AIDS), greater attention is now being paid to maximizing the natural linkages which exist between HIV/AIDS interventions and sexual and reproductive health services. PMTCT is increasingly understood as one of a number of services aimed at women and children which are essential for bringing about improvements in maternal and child health.

A short history of PMTCT

PMTCT has been one of the leading strategies to prevent new HIV infections since 1998, when clinical trials demonstrated the effectiveness of using antiretroviral drugs during and shortly after birth to reduce the likelihood of HIV-transmission between mothers and their infants. The success of these trials pointed to the potential for relatively simple, low-cost interventions to be rolled out on a large scale and to have a significant impact on HIV transmission levels (WHO, 2010b). Seeing an opportunity for a major contribution to the global AIDS response, in 2001 the UN General Assembly Special Session on HIV/AIDS (UNGASS) set a target that 80% of pregnant women and their children should have access to HIV prevention, treatment and care services by 2010.

Medical interventions

The earliest PMTCT regimen involved 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 – an approach which was relatively simple to implement and which could reduce early HIV transmission from mother to child to the range of 8.6% to 13.7% (Colvin M et al, 2007). In combination with safe delivery and infant feeding practices, this transmission rate could be lowered even further.

With the introduction of antiretroviral treatment (ART) in developing countries, the standard of care began to change and in 2008 the WHO recommended to move to a preventive therapy using a triple-combination ART prophylaxis, and PMTCT starting at 28 weeks gestation, to decrease the transmission rate further and to prevent the emergence of resistance to one or more ART drugs. The guidelines were revised again in 2009, for the same reasons,

with the new recommendation that PMTCT be initiated at 14 weeks gestation. In addition, the WHO recommended that pregnant women eligible for full treatment, on the basis of their CD4 cell counts, should be immediately initiated on treatment for their own health, irrespective of the week of gestation. In 2010 the WHO's revised technical guidelines for PMTCT addressed infant feeding practices in the context of HIV, and recommended that antiretroviral (ARV) prophylaxis be given to HIV-positive women during breastfeeding in settings where breastfeeding is the safest feeding option.

German-supported health programmes helped to establish a new maternal child health unit and a laboratory for ANC-related testing at the Migori District Hospital in Kenya.

The antiretroviral drugs used to prevent mother-to-child transmission vary in efficacy, depending on the type of regimen and the duration of treatment. Combination regimens have been shown to be more effective and less likely to lead to drug resistance than monotherapy with nevirapine (UNAIDS, 2010). National-level policies and treatment protocols have been shifting in response to WHO's recommendation that pregnant women living with HIV and their exposed infants receive combination therapy, rather than single-dose nevirapine. According to UNAIDS, there has been a change from single-dose nevirapine to combination regimens in 10 of the 25 countries with the greatest number of HIV-positive pregnant women and, in the 59 low- and middle-income countries which provide disaggregated data about their PMTCT treatment regimes, 54% of pregnant women received combination therapy in 2009, compared to 30% which received single-dose nevirapine (UNAIDS, 2010).

The rise of a comprehensive approach

In 2009, buoyed by the successes of PMTCT programmes and against the backdrop of intensifying efforts to meet UNGASS and Millennium Development Goal targets, UNAIDS launched a global campaign for the virtual elimination of mother-to-child transmission. This call secured the support of major bilateral and multilateral agencies, national governments and regional coordinating bodies, and dovetailed with other international commitments to improve maternal and child health, such as the Muskoka Initiative, agreed upon by the G8 heads of state at their meeting in Canada in 2010.

The World Health Organization developed a strategic vision to guide these efforts, drawing upon the medical and programmatic lessons learned over the previous decade. The strategy emphasizes the need for a comprehensive approach to reducing mother-to-child transmission, moving beyond a narrow focus on medical interventions. While drug prophylaxis can dramatically reduce transmission rates if patients adhere to the regimens, it does not prevent all new infections, nor does it help those already living with HIV. Complementary efforts are required to address some of the social drivers of mother-to-child transmission.

The World Health Organization's strategy (WHO, 2006 & 2010b) is structured around four main prongs:

1. Primary prevention of HIV infection among women of childbearing age;
2. Preventing unintended pregnancies among women living with HIV;
3. Preventing HIV transmission from women living with HIV to their infants; and
4. Providing appropriate treatment, care and support to mothers living with HIV and their children and families.

When PMTCT is implemented in this comprehensive fashion, it addresses some of the underlying factors which contribute to the sizeable number of new paediatric HIV infections which continue to occur worldwide. These include insufficient primary HIV prevention services for young women and women of reproductive age; a high unmet need for family planning services among women living with HIV; inadequate access to HIV testing and counselling for pregnant women; and the limited participation of men in supporting their female partners during antenatal care, childbirth and ART.

Implementing this comprehensive approach requires much closer interactions between HIV-related services, such as PMTCT, on the one hand, and sexual and reproductive health services and other health services addressing the causes of high maternal and child mortality, on the other. Building stronger linkages between these types of services has emerged as a high priority for international institutions and national governments as they seek not only to extend the reach of PMTCT programmes, but also to improve their overall effectiveness.

The German Contribution

On behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)[2] supports the four elements of the WHO strategy through comprehensive HIV-control and sexual and reproductive health interventions within its health sector programmes. Through the technical and financial cooperation it provides, Germany supports governments in sub-Saharan Africa and Asia in policy formulation and in the implementation of programmes aimed at the prevention of HIV and the treatment and care of people living with HIV.

Moreover, in its work German Development Cooperation (GDC) increasingly emphasizes the importance of linkages between PMTCT, maternal and child health, and sexual and reproductive health. A 2011 policy paper summarizes the German position on support for a comprehensive approach to PMTCT and on linkages between HIV and sexual and reproductive health services (BMZ, 2011).

The German government has supported efforts to prevent the transmission of HIV from mothers to their babies since the earliest stages of the PMTCT era. For more than a decade, German-supported projects and programmes in high HIV prevalence countries have addressed many of the elements of what has more recently become known as the comprehensive approach to PMTCT, including primary HIV prevention, family planning, drug-based prophylaxis of HIV infection between mothers and infants, and treatment and care for infected

[2] The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH was formed on 1 January 2011. It brings together the long-standing expertise of the Deutscher Entwicklungsdienst (DED) gGmbH (German development service), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German technical cooperation) and InWEnt – Capacity Building International, Germany. For further information, go to www.giz.de.

women and their families. Like many other countries, it provided particularly intensive support for the introduction of drug-based prevention of HIV in some countries at the time when this approach was new and required significant, specialized expertise to establish. From the start, these efforts have been accompanied by sustained and systematic operational research on the results, supportive factors and challenges for PMTCT programmes, the findings from which have helped to advance global understandings about PMTCT in developing country contexts.

For more than a decade German-supported programmes have addressed many of the elements of what has become known as the comprehensive approach to PMTCT.

This document, which updates an earlier publication prepared in 2007 as part of the German HIV Practice Collection, reviews the history of German support for PMTCT over the past decade. It describes the approach used in implementing an early and innovative PMTCT intervention to provide single-dose nevirapine to HIV-positive pregnant women and their infants in Kenya, Tanzania and Uganda between 2001 and 2009, and provides examples of the ways in which GDC has supported elements of a broader approach to PMTCT in a number of countries in sub-Saharan Africa, including Kenya, Malawi and Tanzania. Activities undertaken in Tanzania are highlighted in this publication, as illustrations of the way in which German-supported health programmes are making important contributions to scaling up universal access to PMTCT and the global effort to eliminate new paediatric HIV infections.

Approach

Medical Prevention of HIV Transmission: the PMTCT and PMTCT-Plus Programmes (2001 - 2009)

Overview of an innovative programme

Encouraged by the results of clinical trials which demonstrated the effectiveness of nevirapine-based prophylaxis to prevent the transmission of HIV between mothers and their infants, and in response to calls from the UN General Assembly that such services be rolled out on a large scale, the German government committed itself early on to support the implementation of PMTCT strategies in high HIV-prevalence countries. At a time in which PMTCT services were in the very initial stages of implementation worldwide, the German Ministry for Economic Cooperation and Development, through the former GTZ, began an ambitious and innovative eight-year project of technical assistance for a nevirapine-based PMTCT programme in three countries in sub-Saharan Africa.

The programme, which was coordinated by the Institute of Tropical Medicine at the Charité – Universitätsmedizin Berlin, was rolled out in 2001 at selected health facilities offering antenatal care (ANC) services in Kenya's Nyanza Province, the Mbeya Region of Tanzania and Fort Portal, in western Uganda. At the time, health was a priority area for German Development Cooperation in all three countries, and Health Programmes were in place in each of them. Implemented in line with existing national guidelines on PMTCT (where these existed), and fully integrated into the countries' health service structures, the programme provided voluntary antenatal HIV counselling and testing, ARV prophylaxis to HIV-positive pregnant women and their infants, and counselling on safer methods of infant feeding. Although single-dose nevirapine is now the minimum international standard in this area, at the time at which the programme started, these were state-of-the-art HIV-prevention approaches for pregnant women in countries where such services had not previously been available.

Figure 1: Districts in Kenya, Tanzania and Uganda where the PMTCT project was implemented.

Uganda
Kabarole, Kamwenge and Kyenjojo District

Kenya
Migori and Kuria District

Tanzania
Mbeya and Mbozi District

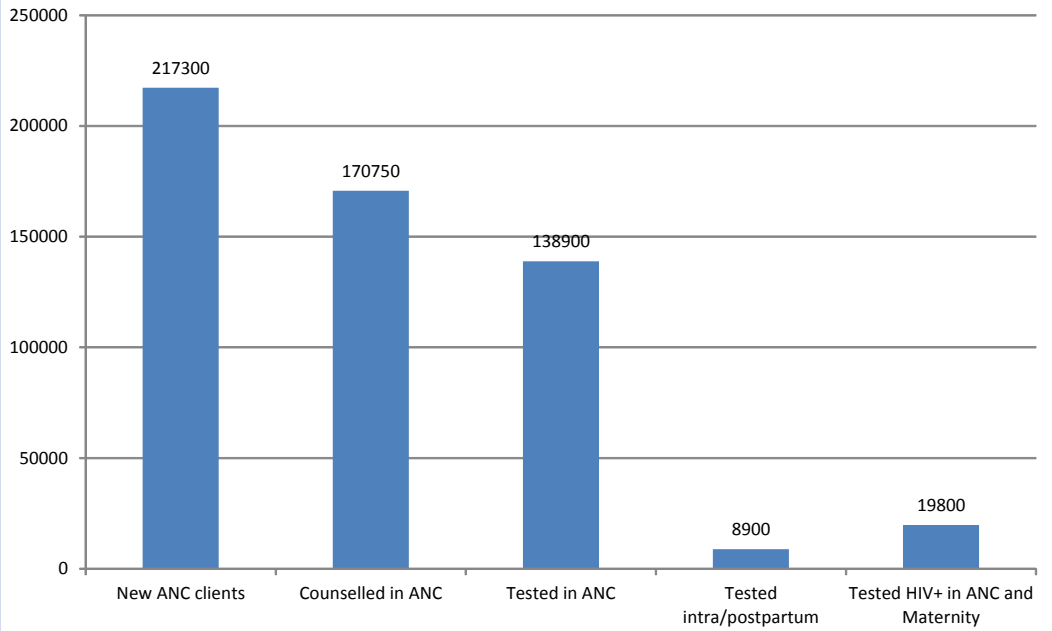
In 2003 - 2004, anticipating the eventual extension of ART to developing countries, the programme adopted an approach known as PMTCT-Plus, expanding the available services to include long-term antiretroviral therapy for pregnant women and mothers eligible for treatment, together with care and support for the women, their children and families. Beginning at the Mbeya site in Tanzania, HIV-positive fathers whose CD4 count was under 350 were also offered treatment in an effort to preserve the health and well-being of entire families, not only the children. The PMTCT-Plus programme was among the first in sub-Saharan Africa to provide antiretroviral therapy on a large-scale to pregnant women and infants, as well as to their families, where needed.

Between March 2002 and March 2009, more than 170,000 women attending ANC clinics received HIV counselling through the German-supported project, and more than 138,000 were tested for HIV (see Figure 2, p. 14). Of the women who tested HIV-positive, 95% enrolled in the PMTCT programme. Among women who were breastfeeding exclusively, the HIV-transmission rate in children at six months was about 14%, an encouraging outcome considering that, without intervention, approximately 30 to 40% of children born to HIV-positive women would likely have been infected. In other words, the intervention succeeded in reaching the maximum possible effect of reducing the transmission of HIV infection by 50%.

Apart from its successes in preventing large numbers of HIV infections, the PMTCT programme broke important new ground in terms of the systems which were developed to support its implementation. The programme had to establish a basic supply chain system to ensure that ART drugs were available at the multiple project sites; it was also one of the first to train large numbers of health centre staff to administer ART. Efforts were made to encourage the uptake of PMTCT services within communities near project sites, including through the use of drama groups and local media outlets. The programme also focused significant attention on methods for increasing male involvement in PMTCT as part of a strategy to attract pregnant women to enrol in and complete the programme. All of these elements are further explained in the next section of this report.

In all three countries, as PMTCT and ART services became available nationwide, the German-supported programmes were gradually integrated into the partner countries' national PMTCT programmes. In Kenya and Tanzania, where Germany continues to support the health sector, GDC programmes still provide targeted support for different aspects of PMTCT through training and advisory services provided at the regional and national levels.

Figure 2: Total Participation in PMTCT Programme, through December 2008



Source: GIZ/Charité material

Components of programme implementation

The German-supported PMTCT programme was a complex and multifaceted initiative. Among the elements contributing to its success were the following:

Baseline assessments

The interventions used in the PMTCT programme were informed by the findings of situational analyses conducted at the health facilities designated to participate in the project. At each project site, researchers assessed the organization, infrastructure and use of ANC and maternity services, and also undertook baseline assessments on levels of knowledge about HIV and preventive measures, health workers' knowledge about mother-to-child transmission of HIV and measures to prevent it, and local infant feeding patterns in communities burdened with HIV.

Awareness-raising in the community

To promote PMTCT among pregnant women and to gain the support of health care workers and the wider community, project staff prepared and distributed posters and leaflets, broadcast radio spots, mobilized drama groups and involved influential people at village level. This work was aimed at increasing knowledge about modes of HIV transmission and openness towards using preventive measures, but also promoted primary prevention of HIV and reproductive choices that limit the risk of HIV infection.

Training of health personnel

To ensure quality care for HIV-positive patients, programme staff organized intensive training courses, workshops, refresher courses and supportive supervisions for health workers. Training modules focused on areas such as counselling (e.g., antenatal counselling on HIV prevention, family planning and sexually transmitted infections (STIs);

PMTCT-related counselling; postnatal counselling on infant feeding and nutrition), rapid HIV testing, administration of ARV prophylaxis to mothers and children, management and monitoring of patients on ART, diagnosis and treatment of HIV-related infections, and new techniques for laboratory staff. The AIDS component of the GDC Health Programme complemented the activities of the PMTCT project by training a large number of counsellors and laboratory personnel.

Upgrading infrastructure

The PMTCT programme facilitated significant improvements in health care infrastructure, including building adequate space for health education, counselling, testing, examination and treatment, and the provision of supplies for safer obstetrical practices. It also fostered the implementation of quality-control systems for lab work, and provided computers and software for programme monitoring and data management. Working in parallel, the German Health Programme supported the upgrading of laboratory equipment, allowing for better identification of those in need of HIV antiretroviral treatment and monitoring the safety of treatment, as well as for the cold-storage of blood samples.

HIV counselling and testing

The key drug interventions of the programme required that women have ready access to voluntary HIV-counselling and testing and to counselling on infant feeding. The programme aimed to provide each pregnant woman attending an ANC clinic with counselling and, if desired, testing for HIV. Counselling covered primary HIV prevention and women's reproductive choices. As the programme unfolded in ANC services, opt-in counselling and testing gave way to the opt-out approach now favoured in many countries.

Drug administration

From 2001 to 2008, the project provided those HIV-positive women agreeing to participate in the project with a single dose of nevirapine for themselves and a dose of nevirapine syrup for their infants. The nevirapine tablet was usually given to women during an antenatal visit, since not all women could reach health facilities in time to receive nevirapine at the onset of labour. To receive the nevirapine syrup for infants, women in Tanzania and Uganda were required to come to health facilities within 72 hours of birth; in Kenya they were given the syrup to administer to their infants at home.

A group counselling session in Uganda. Through the German-supported PMTCT programme, women attending antenatal clinics had access to voluntary HIV counselling and testing, as well as counselling on infant feeding.

Beginning in 2008, in anticipation of new WHO recommendations which were issued in 2009, the project supported partners in Tanzania and Kenya to transition from the use of single-dose nevirapine to a triple combination of zidovudine, nevirapine and lamivudine for pregnant women, and a dual combination of zidovudine and nevirapine for infants.

As a considerable number of pregnant women came to participating health facilities for the first time at the time of delivery, and without knowledge of their HIV-serostatus, health workers also undertook intra- and postpartum testing. This ensured that the maximum number of HIV-positive women and their infants would benefit from ARV prophylaxis.

Promotion of male involvement

Women who are supported by their partners during PMTCT interventions are much more likely to accept HIV testing and antiretroviral prophylaxis at delivery, and thus have much better chances of giving birth to and raising healthy infants. Male involvement also increases women's adherence to comprehensive drug regimens for PMTCT. The PMTCT project focused on ways to increase the involvement of men by initiating dialogues with health workers and community leaders to better understand the factors which might discourage men from participating in ANC and PMTCT services. Operational research was undertaken on this issue and several strategies were identified and implemented in selected health facilities, including establishing separate waiting rooms for couples, arranging special opening hours convenient for those in formal employment, and providing husbands and male partners with a letter of invitation to accompany women to their next ANC visit.

Women who are supported by their partners during PMTCT interventions have much better chances of giving birth to and raising healthy infants.

The PMTCT-Plus programme

Beginning in January 2003 in Uganda, November 2003 in Tanzania and March 2004 in Kenya, ART was offered to eligible HIV-positive mothers and any eligible HIV-positive members of their families. Health workers in the PMTCT-Plus Programme followed international and national guidelines in determining whether antiretroviral treatment was indicated and choosing drug regimens for those in need. Eligibility was determined by CD4-cell testing coupled with a positive appraisal of the person's ability to comply with an ART regimen. If a pregnant woman was deemed eligible, treatment was started immediately to provide the maximum benefit for her and the unborn child.

Patients in the PMTCT-Plus programme were examined and lab tests were done on a regular basis to measure their responses to treatment and drug adherence and diagnose any side effects or opportunistic infections.

The interaction of the PMTCT and ART components is illustrated in Figure 3 (see p. 17).

Monitoring and evaluation

From the outset, there was a strong emphasis on the creation of effective monitoring and evaluation (M&E) systems. International partners worked closely with national counterparts to design M&E systems which provided regular feedback to Ministries of Health on the results of antenatal care, delivery, follow-up, and antiretroviral treatment. Monthly updates on the most important indicators also helped health workers to make continuous improvements, guided programme supervision and provided a baseline for research. The team at the Charité in Berlin supported this process on a continuous basis.

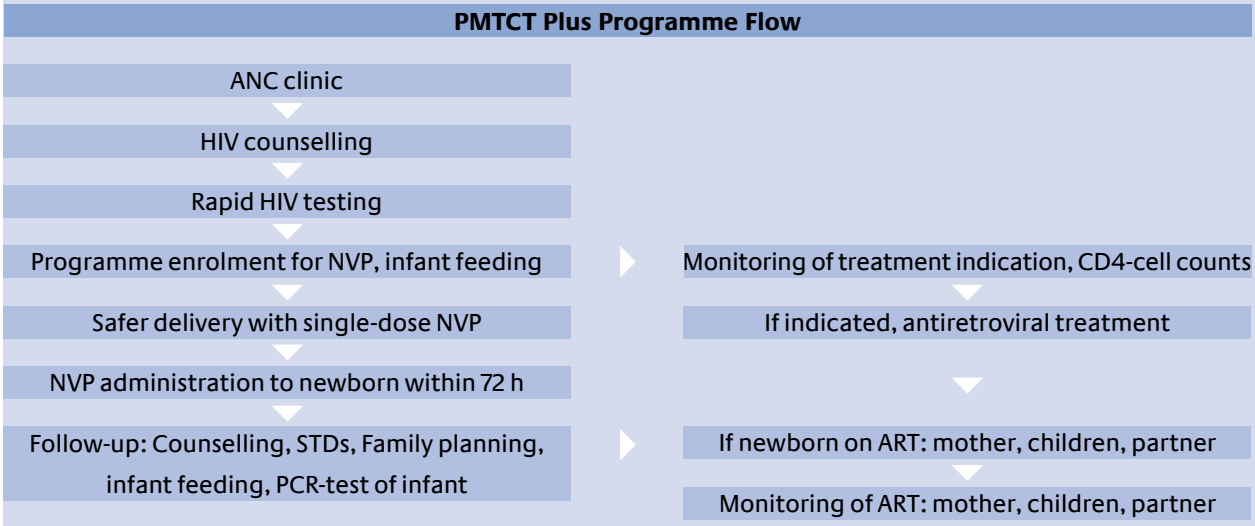
Research

The project took a comprehensive approach to research, with operational and biomedical studies which attempted to analyse the impact

of interventions, the influence of different factors on vertical HIV transmission and the feasibility of and minimum prerequisites for establishing programmes. Operational research helped to identify the reasons why women dropped out of the programme, explored ways to increase the involvement of male partners, and investigated the conditions under which nevirapine intake was the highest.

Biomedical studies followed a mother-and-child cohort, exploring the influence of nevirapine (NVP) intake on HIV-transmission, the correlation between viral load and nevirapine concentrations in different bodily fluids, and the emergence of resistant virus and its transmission. In the case of one cohort receiving antiretroviral therapy, biomedical and operational studies focused on clinical, immunological and virological treatment outcomes, the side effects of and adherence to treatment, loss to follow-up among patients in need of treatment, and adherence to triple-combination ART prophylaxis under the conditions of a rural district hospital in Tanzania.

Figure 3: Interaction of PMTCT and ART components



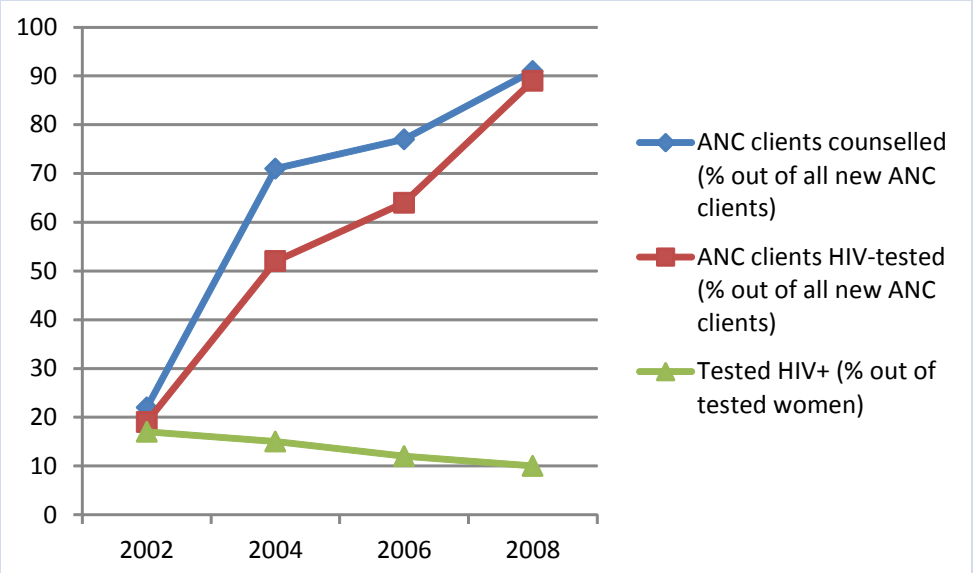
Source: GIZ/Charité

Results and lessons learnt

The BMZ-supported PMTCT and PMTCT-Plus programmes produced encouraging results in terms of women's participation in the programme, clinical outcomes, biomedical research findings and operational insights into the effective implementation of PMTCT programmes. Key results of the programme include:

High uptake of antenatal care, HIV counselling and testing, and PMTCT services by pregnant women at project sites. Between March 2002 and March 2009, 217,300 new ANC clients made use of health services at facilities participating in the programme in Kenya, Tanzania and Uganda. Of this number, 170,750 (79%) women were counselled on PMTCT and related issues, and 138,900 (81%) of those who were counselled agreed to be tested. An additional 8900 women were tested intra- or post-partum for HIV. Of those tested, 19,800 (13%) were HIV-positive. Ninety-five percent of the pregnant women who tested positive were enrolled in PMTCT. Figure 4 shows the growth in the proportion of ANC clients in Tanzania who were counselled, tested for HIV and tested HIV-positive over the duration of the programme.

Figure 4: Participation in ANC Services at Project Sites in Tanzania, 2002–2008



Source: GIZ/Charité material

A reduction in the rates of mother-to-child transmission of HIV. Project data shows that, among women who were breastfeeding exclusively, the HIV-transmission rate in children at six months was about 14% – roughly half of what could be expected without any interventions and the best result that could be anticipated using single-dose nevirapine. Interpretation of these results is complicated by the fact that it was not possible to document in all cases that the nevirapine was ingested as prescribed. In accordance with different country guidelines, nevirapine tablets were handed to pregnant women at different points in time in their pregnancies, with instructions that they be taken at the onset of labour. In 39% of cases, the nevirapine tablets were swallowed under the direct supervision of a health worker, but in the remaining cases – for example, when women arrived at the health facility already in labour or gave birth outside health facilities – it could not be confirmed whether nevirapine was taken in accordance with protocols.

ART treatment outcomes comparable to international standards. As part of the programme's comprehensive monitoring protocol, clinical, immunological and virological data were collected to monitor treatment success for participants in the PMTCT-Plus programme. After six months 79% of those who began antiretroviral therapy were still receiving this treatment, 9% had died and 12% had been lost to follow-up for unknown reasons. Participants' CD4 cell counts increased, on average, from 170 cells/µl before treatment to 380 cells/µl at 48 weeks after starting treatment, and the average viral load decreased from 300,633 c/ml before treatment to 471 c/ml 48 weeks after starting treatment. In approximately 14% of patients, viral loads were not fully suppressed – or had bounced back after initial suppression – after 24 weeks of treatment, indicating treatment failure; these patients were switched to a different drug regimen.

Findings from systematic operational and biomedical research shared internationally. The German-supported PMTCT programme distinguished itself through its high-quality and systematic approach to research, throughout the duration of the programme, made possible through sustained collaboration with the Charité in Berlin. On the basis of data generated by the programme, 18 peer-reviewed publications and multiple conference presentations have been prepared, bringing the programme's achievements and lessons learned to an international audience.

Over the duration of the programme, a number of challenges were identified which can minimize the effectiveness of PMTCT programmes. Some of the important lessons learned through the project include:

Drop-out rates are high and need to be addressed. The number of women participating in the programme declined progressively with each stage – from HIV counselling through testing, enrolment and so on – meaning that the proportion of women and infants who actually benefitted from the prophylaxis was not as high as it could have been. This was the case even with single dose nevirapine, which is by far the simplest medical intervention to reduce vertical transmission of HIV. While clinical studies have demonstrated that other perinatal drug regimens reduce the transmission risk more effectively than single-dose nevirapine, research has yet to show that women are more likely to remain in PMTCT programmes offering these more complicated drug regimens, compared to simpler nevirapine-based programmes.

Drama group performance about PMTCT in Mbeya, Tanzania. To promote the uptake of PMTCT among pregnant women, project staff conducted sensitization and outreach activities in the community.

Evidence suggests that higher drop-out rates reduce the effectiveness of PMTCT measures, so new strategies are needed to address this problem. For example, women might remain in PMTCT programmes for longer, and benefit more from them, if their husbands and male partners were more involved and supportive. Missing linkages between PMTCT, HIV care and treatment, mother and child health care, and sexual and reproductive health are also an important factor contributing to high dropout rates. New approaches like voucher schemes and cash transfers might contribute to solving this problem.

The links between antenatal care and ART must be strengthened. In order to improve uptake rates, the project investigated and identified the points at which women would 'fall out of the system,' causing them either not to test for HIV, not to enrol in PMTCT or not to see the programme through to completion. Experience from the project showed that it is crucial to strengthen the link between antenatal care services and PMTCT/ART services so that women don't 'get lost' along the way. Calls for stronger linkages between different types of maternal and women's health services have become much more prominent in recent years, and the experience of the PMTCT programme demonstrated, at an early stage, why this is so important.

Combination therapy regimes are more complicated to implement under the conditions of an African rural hospital and are characterized by lower levels of patient adherence. A study undertaken by Charité at a rural hospital in Tanzania (Kirsten I et al, 2011) explored the practical consequences of the updated PMTCT guidelines which recommend use of triple-combination therapy rather than single-dose nevirapine. It found that levels of patient adherence are significantly lower in the case of combination therapy compared to single-dose nevirapine, because patients are required to visit health facilities so often. In a cohort of 122 mother-child pairs studied, only one completed the process from beginning to end with complete adherence. Combination therapy regimes are not easy to implement with the quality expected, although there are important factors – such as the involvement of male partners or other support persons, the quality of service provision, and patient behaviour – which have been shown to significantly increase levels of patient adherence.

Increased involvement of men in ANC and PMTCT services. Efforts by programme staff to increase the involvement of men in the PMTCT programme yielded results: In Tanzania, only 3% of male partners were involved at the outset of the programme; by the end this rose to an average of 17% across sites. There was huge variation between sites, however, with as many as 50% of male partners at some participating sites informed about the HIV-positive status of the woman.

Male involvement improves PMTCT outcomes. Increasing the involvement of male partners in ANC and PMTCT services is important for improving PMTCT outcomes. Research from this project has demonstrated, however, that men in the Mbeya Region of Tanzania generally held beneficial attitudes towards PMTCT interventions, including involvement in ANC/PMTCT services (Theuring S et al, 2009) – a finding which suggests that external barriers may play a large role in their low participation rates. This could include the fact that health workers do not regard pregnancy as a situation of concern for men and treat them in an unfriendly way when they appear in a health facility accompanying their pregnant partners. The experience from this project suggests, therefore, that changes in the attitudes of health workers and specifically targeting the needs of male partners in ANC and PMTCT programmes can improve involvement rates, to positive effect.

PMTCT – and ART in particular – demand significant human resources. Every pregnant woman counselled, tested or enrolled in PMTCT 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. This strengthening of human resources will not only help to sustain existing programmes, it will be critical to providing the group counselling and routine offer of HIV testing as part of a basic package of services for all pregnant women attending health facilities.

Other activities in support of a comprehensive approach to PMTCT

The PMTCT programme described above was a large-scale, multi-year initiative which provided targeted support for the roll-out and implementation of PMTCT as a medical intervention. When the programme began, the use of drug-based prophylaxis to reduce mother-to-child transmission was a new area of activity and developing countries with high HIV prevalence rates required significant support to establish appropriate systems for administering drug regimens to pregnant women and their infants.

In addition to this dedicated support for the medical prevention of HIV, however, the German government has invested in other elements of a comprehensive approach to PMTCT through other GDC-supported programmes in the region. This section provides examples of some of the activities and approaches which have been supported over the past decade in Tanzania, where Germany has been a key player in the response to HIV since the late 1980s.

The German contribution to the HIV response in Tanzania

The BMZ' support for HIV control in Tanzania has traditionally centred on the Mbeya Region, an area in the southwest of the country with a population of approximately 2 million people and an estimated HIV prevalence rate among sexually active residents which exceeded 20% in the mid-1990s.

Between 1988 and 2000, the former German Technical Cooperation Agency (GTZ) was the main supporter of the Mbeya Regional AIDS Control Program (MRACP), an initiative driven by the Ministry of Health and local government which sought to increase the coverage of comprehensive

HIV programming in the region. The approach adopted in Mbeya Region has contributed to a steady decline in HIV prevalence in young women attending ANC since 1995 and has been recognized by UNAIDS as a best practice example of expanding universal access to HIV prevention, treatment and care (UNAIDS, 2007). By 2005, HIV prevalence among the 15 to 24 year-old population in the region had declined to 13% – a reduction believed to reflect the success of a comprehensive approach; a population-based survey carried out in 2007 estimated the HIV prevalence to be 8% (TACAIDS, 2008).

Germany's contribution to the fight against HIV in Tanzania – and to the prevention of mother-to-child transmission of HIV specifically – was initially channeled through three separate, but interlinked projects implemented by the former GTZ: an AIDS control project (of which the PMTCT programme described above was a part), a sexual and reproductive health project, known as 'Changemaker,' and a health sector project focusing on district health management. A decade ago the concept of PMTCT was much narrower than it is today and the various elements of what are now thought of as a comprehensive approach were addressed separately, under these different components.

Although the three projects worked together closely, the linkages between them greatly intensified when they were combined into one overarching health programme, the Tanzanian-German Programme to Support Health (TGPSH). Since 2002, TGPSH has deepened its activities in the Mbeya Region and extended them to Tanga, Linda and Mtwara regions. TGPSH's current phase has four programme components: Sexual and Reproductive Health and Rights and HIV/AIDS, Health Financing and Social Protection, Capacity Development and Human Resources, and Decentralised Subsidiary Health Services. In the area of sexual and reproductive health (SRH) and HIV, the programme provides advisory services to public institutions such as the Tanzania Commission for AIDS (TACAIDS), the Ministry of Health and Social Welfare, and the Ministry of Education, and supports them to implement selected strategies.

Preventing HIV infections among women of reproductive age (prong 1)[3]

The simplest and most cost-effective strategy for eliminating the transmission of HIV from mothers to their infants is to prevent infections among girls and women of reproductive age. The first element of the comprehensive approach to PMTCT therefore focuses on the 'primary prevention' of HIV infections. HIV prevention services available in the community and through health service facilities – including in conjunction with existing sexual and reproductive health services (e.g., antenatal and postpartum care) – can help to reduce the number of women and girls infected with HIV and therefore lessen the need for medical interventions to prevent further transmission.

The simplest and most cost-effective strategy for eliminating the vertical transmission of HIV is the primary prevention of infections among women and girls.

GDC-supported programmes have promoted the primary prevention of HIV infections among both women and men in Tanzania in a number of ways, primarily through community-based interventions. Examples include:

[3] This and the next two sections show GDC's comprehensive approach to PMTCT in line with WHO's four-pronged strategy – medical prevention of 'vertical' transmission being prong 3.

Condom promotion and distribution

Starting in 1995, the Mbeya Regional AIDS Control Programme launched a large-scale condom promotion project involving the provision of free and affordable (socially marketed) male condoms. The total number of free and socially marketed condoms distributed in Mbeya Region rose from 2.5 million in 1995 to 7.7 million in 2008, making it the region of Tanzania with the highest condom sales in the country, after Dar es Salaam. The region is home to more than 5000 condom distribution and/or sales points. The condom social marketing project is supported by Population Services International (PSI) with financial support from Germany, the United States and the Netherlands.

Expansion of VCT services

The GDC-supported AIDS project in Mbeya Region facilitated a huge expansion in the availability of voluntary counselling and testing (VCT) services for HIV. VCT services were introduced at Mbeya Referral Hospital in 1992 and by 1995 all the district hospitals in the region were offering VCT staffed by trained psychosocial counsellors. A decade later, VCT was available at more than 100 facilities throughout the region and the demand for HIV tests and counselling continued to expand with the roll-out of ART services. More than 40,000 people were tested for HIV in 2005 alone.

The VCT programme focused on three categories of clients: those referred for testing on clinical grounds (i.e. patients suspected to be HIV-positive), community members who wanted to learn their HIV status, and pregnant women receiving antenatal care. Programme staff trained more than 250 health care workers in counselling skills and undertook regular supportive supervision visits to districts in the region. They also implemented sensitization activities in the community to increase uptake of VCT and PMTCT services. Drama presentations and the distribution of information leaflets were among the strategies used to encourage people to test.

Peer education and counselling in schools

The Tanzanian Ministry of Education introduced HIV into the primary school curriculum in 1997 and since that time has promoted peer education on sexual and reproductive health in primary school settings. Peer education is aimed at students aged 11 to 15, with the understanding that young people may become sexually active as early as 10 to 12 years of age. Because many students in Tanzania do not progress on to secondary school, primary schools offer an opportunity to reach large numbers of young people.

Students attending a peer education session. GDC has supported efforts by the Tanzanian Ministry of Education to introduce peer education on sexual and reproductive health into school settings.

The former GTZ began supporting peer education in schools in Mbeya Region in 1996; since 2003 the Tanzanian-German Programme to Support Health,

in collaboration with the Swiss Tropical and Public Health Institute, has supported the Prevention and Awareness at Schools of HIV and AIDS (PASHA) programme, working with the Ministry of Education and Vocational Training to apply the guidelines for implementing HIV/AIDS and Life Skills Education in schools. The PASHA programme, which works with students and the wider school community in both primary and secondary schools, aims to improve young people's knowledge about sexual and reproductive health, including HIV, and to enable them to make informed decisions about their sexual relationships in order to minimize the risk of infection with HIV or other sexually transmitted diseases.

PASHA works along a training cascade model: national trainers prepare a cohort of trainers who, in turn, train male and female counsellors (teachers) at schools to provide counselling services to both colleagues and students on sexual and reproductive health, rights and HIV. The counsellors are also trained to support peer education programmes in their schools. After being elected by their peers, students are trained in facilitation skills and in sexual and reproductive health, rights and HIV issues. While the counsellors support the peer educators in their preparations, the twice-weekly afternoon sessions for students are conducted by peer educators alone. On average, each pair of peer educators reaches approximately 80 students.

TGPSH has supported the training of more than 800 counsellors and 3000 peer educators in its four partner regions; it also works with the Ministry of Education and Vocational Training to scale up the approach nationwide. A number of other development cooperation partners support PASHA in other parts of Tanzania; benefitting from TGPSH-supported technical advice, these agencies have trained additional counsellors and peer educators.

A study on the effectiveness of the PASHA approach (Baxen J, 2009) has found that it improves knowledge about HIV, sexuality and HIV prevention among students and strengthens their life skills (e.g. girls demonstrating similar career aspirations to boys). Another study has shown that pregnancies among school girls decreased during the intervention period; the PASHA approach is seen as one of the factors contributing to this trend (Goergen, 2009).

The Community Based Distributors programme

Since 2000 TGPSH has supported the Ministry of Health's Community Based Distributors (CBD) programme, in which male and female volunteers who are selected by the community work on a part-time basis promoting sexual and reproductive health and HIV services to people outside the formal health system. Each CBD serves between 50 and 100 households, meeting confidentially with community members in their homes as well as holding public talks on sexual and reproductive health topics such as HIV and other sexually transmitted infections, VCT, family planning, safe motherhood, gender-based violence and male involvement in SRH services. TGPSH has trained 2300 CBDs in its four focus regions; 600 of these have been trained in a new curriculum which emphasizes the linkages between sexual and reproductive health and HIV.

CBD agents carry out a range of health-promotion functions (their work on family planning is described in the next section), one of which relates to the primary prevention of HIV and STIs. For example, CBDs have become important distributors of condoms – for both the prevention of pregnancy and sexually transmitted infections – oral contraceptives and emergency contraception. They regularly refer clients to health facilities for VCT services, among others, and emphasize HIV prevention measures in their health talks.

Work with Traditional Initiators

Traditional Initiators (TIs), respected members of the community who guide the rituals associated with the passage of young boys into adulthood, continue to play an important role in many Tanzanian communities. In addition to conducting the initiation rites – including circumcision and teaching new initiates the values and customs of the community – TIs are seen as the guardians of a community's culture and traditions more broadly. While their work is focused particularly on young boys, they also are in a position to reach out to the population at large and to shape community attitudes and norms on a range of issues.

Since 2008, GIZ has worked with Traditional Initiators willing to act as health promoters in their communities. Identified with the help of regional and district health officials, selected TIs participate in GIZ-led training workshops focused on sexual and reproductive health, gender-based violence, adolescent reproductive health, and HIV. TIs are encouraged to provide factually correct information in response to queries from community members and to take care not to contribute to popular myths or misinformation about HIV and sexual and reproductive health. By building TIs' competence in the areas of sexual and reproductive health and HIV, GIZ seeks to ensure that, in the course of their normal activities, TIs are able to act as resources on issues such as HIV prevention and testing, PMTCT and the implications of HIV discordancy within married couples.

Family planning services for HIV positive women (prong 2)

Women living with HIV have special needs for information and services related to family planning. Many HIV-positive women wish to limit the number of children they have and need reliable access to contraceptive services in order to avoid unintended pregnancies. And those HIV-positive women who want to have children require specific counselling and support to optimize health outcomes for themselves and their infants, including through the use of PMTCT interventions.

There remains a large unmet need for family planning services for HIV-positive women and much remains to be done to better integrate family planning and HIV services so that HIV-positive women have access to appropriate and timely support. In Tanzania, German-supported health programmes have worked to strengthen and expand family planning services for all women, irrespective of their HIV status, and by strengthening the linkages between HIV and sexual and reproductive health services (see p. 27).

Community Based Distributors' support for family planning

The Community Based Distributors programme, described in the previous section, has emerged as an important strategy in expanding the reach of family planning services in Tanzania. CBD agents are non-medical personnel who have been trained to provide the most popular family planning methods to clients, including injectable contraceptives, oral contraceptives and condoms, on a confidential basis. CBD agents make no distinction between HIV-positive and HIV-negative women – and in most cases probably do not know the HIV status of their clients – and their efforts to make information about family planning available to people outside the formal health system reach both infected and uninfected women and men alike.

In addition to distributing contraceptives directly to clients, CBDs also refer people to health facilities for services such as antenatal care (where eligibility for PMTCT is assessed), VCT, and long-term family

planning. They also raise awareness about the importance of men supporting their wives in family planning issues, but also in reproductive and child health issues more broadly. Through TGPSH approximately 2300 CBDs have been trained to carry out health promotion work in the programme's four focus regions, making an important contribution to the goal of reducing the unmet need for family planning services, including among HIV-positive women.

A condom demonstration by Community Based Distributors. CBDs' health promotion activities contribute to HIV prevention and extend the reach of family planning services.

Integrated care, treatment and support services for HIV-positive women and their families (prong 4)

While the early focus of many PMTCT programmes was on saving the lives of children born to HIV-positive mothers by reducing the HIV transmission rate, it was soon apparent that efforts to prevent mother-to-child transmission of HIV were ultimately of only limited use if hundreds of thousands of children would grow up as orphans, or be forced to care for their sick parents from a young age. The final element of a comprehensive approach to PMTCT therefore calls for the integration of HIV-related care, treatment and support services for HIV-positive women and their family members to ensure that families remain intact and all members of the household have access to treatment and support, as needed.

The German-supported PMTCT-Plus programme, described in this publication, was one of the first in East Africa to pioneer the approach of making antiretroviral therapy available to pregnant women and their male partners. In addition to this, German support in Tanzania made possible the development of a large-scale counselling and home-based care programme which supported thousands of people in the Mbeya Region with HIV-related psychosocial support services.

In 1991, the former GTZ supported the creation of Kihumbe (Kikundi cha Huduma Majumbani Mbeya), a non-governmental organization (NGO) based in Mbeya City which brought together a group of people committed to caring for HIV-positive patients in their homes, following their discharge from hospital. In the pre-treatment era, there was a great need for Kihumbe's core activities: making home visits to HIV-positive patients, providing supportive counselling services to patients and family members, promoting healthy diets and hygienic practices in households with HIV-positive members, and providing medicines and basic nursing care. Kihumbe's members also conducted outreach activities in the community, promoting awareness about HIV and means of prevention, encouraging people to undergo VCT, and mobilizing support for orphaned children. Between 1994 and 2003, Kihumbe carried out more than 9000 HIV tests in the community; by 2006 the organization was providing care for more than 500 home-based care clients, 700 orphaned or vulnerable children, and 100 patients enrolled in ART programmes.

Counselling and home-based care was also a core part of the German-supported Mbeya Region AIDS

Control Programme (MRACP). Beginning in 2003, two mission hospitals in the region began offering home-based care services using hospital-trained counsellors; over time, they were joined by community-based counsellors, including from NGOs such as Kihumbe. Home-based care was intended to improve the quality of life of both HIV-infected individuals and their family members. Counsellors would visit HIV-positive patients and their families at home, provide them with basic medicines and supplies to treat certain HIV-related symptoms, and offer support and advice to combat feelings of fear, loneliness and stigma. By 2005, more than 6000 people in the Mbeya Region were benefitting from home-based care services under MRACP.

Strengthening linkages between sexual and reproductive health and HIV services

In various agreements and commitments, the international community has repeatedly expressed its intention to use a comprehensive and integrated approach in addressing sexual and reproductive health and rights, including HIV. There is a general consensus that stronger linkages between SRH and HIV services would benefit the health of young people, mothers, infants and children and contribute to the achievement of Millennium Development Goals 5 (maternal health) and 6 (HIV/AIDS). Despite this, however, SRH and HIV programmes have too often been implemented in parallel – a problem which has been exacerbated, in recent years, by the enormous growth of international financing for HIV and the rapid scaling-up of 'vertical' HIV programmes in many countries with high HIV prevalence rates.

PMTCT is a prime example of the importance of linking HIV-related services with sexual and reproductive health-related interventions. Whilst the 2008 definition of PMTCT with its four prongs clearly reflects this understanding, many PMTCT programmes that have been rolled out in high HIV-prevalence countries have focused on prong 3 – medical interventions to prevent transmission – without paying sufficient attention to the connections to prong 1, 2 and 4. Drug-based prophylaxis for pregnant HIV-positive mothers has typically been implemented in accordance with a specific stand-alone strategy, through specially organized systems embedded in health facilities, and by health workers with expertise in this field, but not necessarily in related issues, such as family planning, antenatal care and antiretroviral treatment. Yet thanks to an upsurge of interest in the question of linkages between SRH and HIV services, these types of traditionally vertical programmes are now being reconsidered at both a strategic and operational level.

Stronger linkages between sexual and reproductive health and HIV services would benefit the health of young people, mothers, infants and children.

In line with recent calls for better integration of SRH and HIV services, GDC has taken steps to ensure that all its health programmes pay greater attention to horizontal linkages between SRH and HIV services. A 2011 policy paper (BMZ, 2011) details ways in which linkages can be emphasized at the level of policy (e.g., through BMZ policy directives, policy dialogues in partner countries, and engagement with multilateral programmes and institutions), within GDC implementing organizations (e.g. when designing new programmes, undertaking progress reviews and interim evaluations, launching new programme phases) and at the country level, within programmes. Because GDC works in partner countries at multiple levels, and in close cooperation with other development partners, it is well-placed

to support the creation of synergies between sexual and reproductive health and HIV services within strengthened health systems.

Tanzania is one of the countries in which the new German approach to promoting linkages is furthest advanced. The strong focus on PMTCT in Tanzania over the past decade may be one reason why this is so: through their own practical experience, staff of the German-supported programme saw why integrated services are essential to positive health outcomes and invested significant effort in exploring ways to better link related services. The PMTCT project revealed how separate and parallel services can often lead to clients getting 'lost in the system,' which introduces administrative inefficiencies, leads to greater costs and undermines the efficacy of interventions. With the advent of ART in Tanzania, ever greater numbers of women have entered onto full treatment – a change which has required even greater cooperation between SRH and HIV service providers. Linkages between HIV prevention, family planning, PMTCT and ART have become much more important over time and are being approached more seriously and systematically than before.

PMTCT Coordinator, Migori and Kuria Districts, Kenya. With growing numbers of women on full treatment, linkages between HIV and sexual and reproductive health service providers have become increasingly important.

Among the challenges to further strengthening SRH-HIV linkages in Tanzania, staff of the German-supported programme have found the following:

- Written strategies addressing the importance of linkages are not yet operationalized: although the leadership and management structures are in place and technical and financial support is available, linkages are not yet improving service efficiency in practice. Many SRH and HIV services continue to be provided separately.
- Front-line service providers are not trained to deliver services in an integrated manner and there is still poor coordination, sharing of information and referrals between SRH and HIV services, even at the same institution. The lack of skilled health workers means that a small number of staff have to provide as many services as possible, which presents challenges for scaling up integrated services.
- District planning processes do not sufficiently prioritize sexual and reproductive health and family planning services compared to the extensive attention paid to HIV in plans and budgets
- Health institutions are overly geared to the needs to mothers and children, not to male partners or to young women who have not yet had children. Men are not accessing SRH and HIV services to the same degree as women and many are not involved in supporting their partners.

Based on this, the German programme has identified a number of priority areas for its work going forward, aimed at strengthening the implementation of policy frameworks and strategic plans to promote the integration of services in practice. These include: building the capacity of health workers to deliver services in an integrated fashion, ensuring a high quality of services for clients through the development of job aids and guidelines for service providers, and promoting opportunities to better link SRH and HIV messaging in the area of prevention.

Future Outlook

Such is the promise of PMTCT for limiting the vertical transmission of HIV between mothers and infants that many now feel it realistic to talk about achieving an AIDS-free generation of children. Under the leadership of UNAIDS, and with the backing of national governments, development agencies, civil society organizations and networks of people living with HIV, a global initiative has been launched with the goal of eliminating new HIV infections among children by 2015 and ensuring the health of mothers (UNAIDS, 2011).

Against this backdrop, and in light of its evolving contributions to PMTCT worldwide, the German government has considered how it can best assist in the attainment of this goal. In a policy paper issued in 2011, the BMZ's Working Group on Sexual and Reproductive Health and the Working Group AIDS, both part of the Theme Group on Health, identified several areas of support for PMTCT from German Development Cooperation in the coming years (BMZ, 2011). At a strategic level, Germany can make use of policy dialogue processes with partner countries to reaffirm the need for PMTCT to be understood and implemented broadly, with due attention given to its linkages with sexual and reproductive health and rights. Specific priorities include:

- Strengthening the primary prevention of HIV by ensuring that young women have better access to preventive services and counselling, both inside and outside health institutions;
- Scaling up access to family planning for women living with HIV in order to reduce unwanted pregnancies;
- Emphasizing the need for HIV testing and counselling to become a standard part of antenatal care;
- Increasing the effectiveness and quality of medical interventions for PMTCT. This includes supporting adaptations of national PMTCT guidelines in accordance with WHO recommendations, as well as cooperating with national partners to ensure that these revised guidelines can be implemented effectively within the existing conditions of the national health system;
- Promoting measures to increase male involvement in antenatal care, birth, neonatal care, and in antiretroviral treatment for female partners, including drawing upon the experiences and lessons learned from the efforts in Tanzania; and
- Supporting the adaptation of curricula and training measures for health workers in order to bring about the provision of high quality, integrated SRH and HIV services.

Much remains to be done to shift traditionally stand-alone PMTCT programmes, with their emphasis on medical intervention, onto a more horizontal, integrated footing.

Through the technical advisory services which it provides to partners at a national and decentralized level, GDC can also make real contributions at the level of implementation. In many countries significant progress has been made in revising policies and strategic frameworks to reflect the need for a comprehensive, integrated approach to PMTCT, but significant challenges still remain in operationalizing these in practice. Much remains to be done to shift traditionally stand-alone PMTCT programmes, with their emphasis on medical intervention, onto a more horizontal, integrated footing. In some cases this may require a re-thinking and re-organization of service models, in order to ensure complex linkages between SRH, PMTCT and ART services and better access to these for young people. GDC health programmes in many high HIV-prevalence countries are well-placed to contribute to the development of new models for service implementation, to support them on a pilot basis, and to rigorously monitor and evaluate their feasibility.

German participation in the ESTHER network (Ensemble pour une Solidarité Thérapeutique Hospitalière En Réseau), which supports twinning arrangements between hospitals in Europe and in developing countries, also provides opportunities for improving the quality and effectiveness of PMTCT programmes and the care and treatment of HIV-positive children in partner countries. ESTHER partnerships could be used to implement model projects, such as those described above, and to generate evidence which can inform national PMTCT strategies.

One of the unique aspects of the German contribution to PMTCT over the past decade has been the strong commitment to systematic research and evaluation which characterized the work in East Africa. Continuous operational and biomedical research yielded important information for the development of national PMTCT programmes, for the evolution of German policy on PMTCT and for international discussions about how to improve the quality and scope of PMTCT services.

Operational research will continue to be emphasized in future German support for PMTCT. A number of questions require further exploration in order to improve the effectiveness of PMTCT, including the individual factors which lead HIV-positive women to drop out of PMTCT programmes, thereby reducing effectiveness; the causes of death among infants born to HIV-positive mothers who have received drug prophylaxis and who do not breastfeed (or do not breastfeed exclusively); and the effect of increased male involvement in antenatal care and PMTCT on results such as the number of health facility deliveries and newborn health. Research into these and other relevant questions can be initiated and carried out by German-supported programmes directly, or in cooperation with other partner institutions.

Peer Review

To be included in the German Health Practice Collection, a project or programme must demonstrate that it comes close to meeting most if not all of the criteria that would make it effective, transferable, participatory and empowering, gender aware, well monitored and evaluated, innovative, comparatively cost effective, and sustainable.

The Collection's editorial board and two external experts, who reviewed the original publication in 2008, concluded that German support for PMTCT qualifies for the collection as a 'promising practice' to the extent that it demonstrates the following qualities:

Effectiveness

Between 2002 and 2009 the PMTCT programme provided significant numbers of pregnant women and their infants in Kenya, Tanzania and Uganda with access to what were at the time state-of-the-art HIV-prevention services integrated with ANC in settings where these services had not previously existed. The PMTCT-Plus programme, introduced in 2003-2004, extended these services to include ART for pregnant women and their family members. Through the project, more than 170,000 women attending ANC clinics received HIV counselling, more than 138,000 were tested for HIV, and 95% of those who tested HIV-positive enrolled in the PMTCT programme. Among women who were breastfeeding exclusively, the HIV-transmission rate in children at six months was about 14%, approximately half of what would be expected without any interventions.

Transferability

The PMTCT and PMTCT-Plus programmes adhered to international and national guidelines and were fully integrated with existing national health structures in three low-income countries with heavy burdens of HIV disease.

Participatory approach and empowerment

High drop-out rates among pregnant women at all stages of the PMTCT programme and low levels of involvement by male partners reduced participation rates in the project. Despite this, the project did empower pregnant women in three east African countries with potentially life-saving services, including pre-HIV-test counselling, HIV-testing and post-test counselling, drug-based prophylaxis, ongoing support, counselling regarding general health matters, post-delivery follow-up and, where needed, full antiretroviral therapy. Complementary activities, focusing on primary HIV prevention, the promotion of family planning, and care and support for HIV-positive women and their families, have been undertaken in schools and in the community with the significant involvement of volunteers.

Cost-effectiveness

The cost-effectiveness of the services for PMTCT and ART provided in resource-poor settings cannot be fully understood without further research; however, it is widely agreed that preventing new HIV infections among infants is much less costly than the costs of treating an infected child.

Gender-awareness

In sub-Saharan Africa, young women are particularly vulnerable to HIV. The PMTCT and PMTCT-Plus programmes specifically targeted pregnant women (many of whom are young), and a series of complementary activities reached young women with information about HIV prevention, family planning and other health services both inside and outside the formal health system. Operational research revealed that high drop-out rates in the PMTCT programme were linked to the limited involvement

of male partners of pregnant women in antenatal and HIV-related services; based on this the programme investigated the impact of gender relations on PMTCT, identified measures to increase male involvement, and monitored the effects of this on PMTCT participation and outcomes. This emphasis continues today through the work of the Tanzania-German Programme to Support Health.

Monitoring and evaluation

German support for PMTCT has included a strong research element with international partners contributing to the design of M&E systems in partner countries. For the PMTCT and PMTCT-Plus programme detailed baseline assessments were carried out in Tanzania and Uganda and, in all three countries, programme staff continually monitored the results of antenatal care, delivery and follow-up, and antiretroviral treatment. A monitoring and evaluation protocol was also integrated into the PMTCT-Plus Programme, and studies were done of the cost-effectiveness of interventions and different nevirapine-intake strategies. Research findings have reached a high-level international audience through their publication in peer reviewed articles and multiple conference presentations, helping to inform global discussions about the implementation of PMTCT programmes in developing countries.

Innovation

Single-dose nevirapine for HIV prophylaxis in pregnant mothers at onset of labour is now the minimum international standard in this area; however, when the PMTCT programme began, in 2001, it was among the first to provide this highly effective medical intervention on a major scale. In 2003, the project's PMTCT-Plus programme was also among the first in sub-Saharan Africa to provide HIV antiretroviral therapy on a large-scale to pregnant women and infants, as well as to their families, and health workers, where needed.

Sustainability

The PMTCT and PMTCT-Plus programmes were fully integrated with existing ANC services and national health programmes and consistent with national and international guidelines. In all three countries, as PMTCT and ART services became available nationwide, the German-supported programmes were gradually integrated into the partner countries' national PMTCT programmes. Complementary activities, such as those promoting HIV prevention in schools through peer education and efforts to create stronger linkages between sexual and reproductive health and HIV services, are all undertaken within the context of existing national frameworks and initiatives, thereby contributing to their longer-term sustainability.

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