



Establishing Family-Based HIV Treatment Programs in Sub-Saharan Africa and Thailand

Treating mothers while preventing mother-to-child transmission: The MTCT-Plus Initiative

SUMMARY

Beginning in 2002, the Mother-to-Child Transmission-Plus Initiative (MTCT-Plus) established family-based HIV care and treatment programs in sub-Saharan Africa and Asia. Based at [Columbia University's Mailman School of Public Health](#) and supported by a coalition of foundations, MTCT-Plus linked HIV care and treatment, including treatment with antiretroviral drugs, to existing programs aimed at preventing mother-to-child transmission of HIV.

Results

The initiative:

- Provided HIV care to 16,499 patients (9,732 adults and 6,767 children)
- Provided treatment to 306 HIV-infected clinical staff or members of staff's families
- Reviewed the progress of pregnant women on antiretroviral therapy compared to nonpregnant women and to men:
 - Both pregnant and nonpregnant women's CD4+ cell count nearly tripled after 30 months of antiretroviral therapy.¹
 - Men's CD4+ count also increased, but at a slower rate.
- Helped to develop [The World Health Organization's Prequalification Programme](#), which ensures that the medicines that procurement agencies supply meet acceptable standards of quality, safety and efficacy.

¹ A CD4+ count is a blood test to determine how well the immune system is working in people who have been diagnosed with HIV. A low CD4+ count usually indicates a weakened immune system and a higher chance of getting opportunistic infections. The CD4+ pattern over time shows the effect of the virus on the immune system. In people infected with HIV who are not getting treated, CD4+ counts generally decrease as HIV progresses.

Funding

The Robert Wood Johnson Foundation (RWJF) awarded \$4,986,666 for the project from February 2002 to December 2010 through a grant to Columbia University Mailman School of Public Health.

CONTEXT

Mothers and children suffer the heaviest toll in the worldwide battle with HIV/AIDS, particularly in sub-Saharan Africa. Each year, more than 2.5 million women become infected with HIV and more than 500,000 transmit the virus to their infants, according to the project team at Columbia University.

Groundbreaking progress has been made in the prevention of mother-to-child transmission²; however, these programs offer no care for the mothers themselves.

“When a pregnant woman was found to be HIV positive,” Patricia Toro, MD, MPH, project manager, said, “she was told, ‘When your water breaks or you go into labor, take this pill to prevent transmission of the virus to your child.’ It’s good to be tested, but women were tested and given no options, no treatment, other than one pill to decrease but not eradicate HIV transmission to the child.

“The woman was given a death sentence and the child was destined to be an orphan.”

The MTCT-Plus Initiative sought to bridge the gap between prevention and treatment. As project director Wafaa El-Sadr, MD, MPH, MPA, noted in *Creating Hope: The Story of the MTCT-Plus Initiative*:

The world had divided into people who said “You’ve got to do prevention, treatment is not an option, and you are going to have raging resistance in Africa,” and the few people who were advocating for treatment, saying it was completely unethical not to treat people.

A Shift in Focus

In 2001, the global climate for treatment shifted. The United Nations (U.N.) Secretary General Kofi Annan issued a call to action on HIV, including a pledge to get treatment to people who needed it. The U.N. established the Global Fund to catalyze funds for AIDS, tuberculosis and malaria. Finally, the U.N. General Assembly held a special session on AIDS, which called for treatment and improving programs to prevent mother-to-child transmission of HIV.

² Often shortened to PMTCT.

RWJF's Interest in This Area

While RWJF does not typically fund international projects, the Foundation provided a one-time contribution as part of a philanthropic consortium to pilot the MTCT-Plus Initiative.

THE PROJECT

From 2002 through 2010, Columbia University Mailman School of Public Health conducted the MTCT-Plus Initiative to demonstrate whether it is possible to link prevention with care and treatment for HIV-infected women and their families in the poorest countries. The initiative established 14 family-based HIV care and treatment program sites in eight countries in sub-Saharan Africa and one in Asia:

- Cameroon
- Cote d'Ivoire (Ivory Coast)
- Kenya
- Mozambique
- Rwanda
- South Africa
- Thailand
- Uganda
- Zambia

The MTCT-Plus program sites used existing prevention of mother-to-child transmission programs and prenatal³ clinics as an entry point for enrollment of families into HIV services. The sites provided comprehensive treatment services for women identified as HIV infected during pregnancy and their families, including:

- Medical care for HIV positive adults
- Early diagnosis of infants and prevention of opportunistic diseases
- Antiretroviral therapy
- Patient education and counseling
- Support to encourage adherence to treatment
- Community outreach to build linkages with local organizations and other resources

³ Also called antenatal in developing countries.

- Primary prevention and prophylaxis antibiotics as needed

The Columbia team, known as the MTCT Plus Secretariat, had little in the way of infrastructure to deliver this new service. There were no tried and tested models of HIV care, Toro said. As noted in *Creating Hope: The Story of the MTCT-Plus Initiative*, “In the few pilots that already existed, antiretroviral treatment was seen as acute care—an emergency response—rather than an entry point for long-term care.”

Given this, the secretariat built the initiative from ground zero. They:

- Crafted the program and created protocols for care
- Disseminated the protocol to the sites
- Used interdisciplinary teams of doctors, nurses and counselors with psychosocial experience to train the workers at the sites
- Developed detailed implementation and clinical manuals that covered the full range of services within the program

Columbia subcontracted with [John Snow, Inc.](#), a Boston public health research and consulting firm, to collect data from the sites, monitor implementation of the program, and provide technical assistance.

Challenges

At the start of the initiative, it was often difficult to link prevention of mother-to-child transmission programs to MTCT-Plus’s HIV care and treatment services. “Outside the maternal-child health settings, services for pregnant women were not generally integrated with other services,” the project team reported.

Many sites used creative methods to make clients aware that HIV treatment was available. For example, some sites located outreach workers or volunteers in the local prevention of mother-to-child transmission clinic to personally escort a mother who was just counseled on her HIV-positive status. Other sites paid the partial salary of a nurse in the prevention clinic to call the local MTCT-Plus site if there was a newly infected woman, and arrange transportation to the site.

When the MTCT-Plus Initiative began offering its services, antiretroviral medications were not widely available in sub-Saharan Africa. The New York secretariat worked with UNICEF to establish a drug procurement system to meet the needs across Africa and Thailand. Even with a system in place challenges arose including delays in shipping from manufacturers and local unrest.

In 2005, MTCT-Plus informed the sites that the initiative did not have the funds to continue providing care and treatment. Each of the sites would have to find other sources

of funding. By the end of 2007, the majority of MTCT-Plus patients had been transferred to other programs or their country's national HIV care and treatment programs.

Communications

To share the lessons learned and illustrate both the challenges and the achievements of the MTCT-Plus Initiative, the team at Columbia and the leaders at local sites:

- Provided 76 poster and presentation sessions at the International AIDS Society Conference and the Conference on Retroviruses and Opportunistic Infections
- Conducted a number of plenary talks at the Conference on Retroviruses and Opportunistic Infections, including “HIV Care and Treatment: Models of Care” (2005) and “Putting the C into MTCT—Saving Kids” (2010)
- Published numerous papers in peer-reviewed HIV journals. Topics varied from core clinical outcomes (deaths, immunologic response) to the psychosocial aspects of caring for families and individuals within the MTCT-Plus Initiative. See [Bibliography](#) for titles and publication data.
- Were featured in the book, *From the Ground Up: Building Comprehensive HIV/AIDS Care Programs in Resource-Limited Settings*,⁴ in the chapter “MTCT-Plus Initiative: Engaging Women and Families in Care Through PMTCT Services.”
- Worked with photojournalist Gideon Mendel to make a series of short videos that highlighted the challenges and benefits of treating families infected or affected by HIV/AIDS. The videos were screened at the 2010 International AIDS Society Conference in Vienna and are available on YouTube and the ICAP [website](#).
- Published a virtual paper, *Creating Hope: The Story of the MTCT-Plus Initiative*, available [online](#).

Other Funding

Nine foundations, in addition to RWJF, supported the project:

- Bill and Melinda Gates Foundation (\$10,000,000)
- Henry J. Kaiser Family Foundation (\$50,000)
- MacArthur Foundation (\$5,000,000)
- Packard Foundation (\$2,000,000)
- Rockefeller Foundation (\$10,000,000)
- Starr Foundation (\$5,000,000)

⁴ Published by the Elizabeth Glaser Pediatric AIDS Foundation in 2010.

- Stephen Lewis Foundation (\$396,682 for a mentorship program in 2006)
- USAID (\$600,000 for activities in Cameroon, 2006–2008)
- William and Flora Hewlett Foundation (\$1,000,000)

RESULTS

In a report to RWJF, the Columbia team reported that the initiative:

- **Provided HIV care to 16,499 patients (9,732 adults and 6,767 children. Of the adults:**

- 4,280 were pregnant women
- 3,618 were postpartum women
- 1,573 were spouses/partners
- 261 were other adults living in the house (sister, aunt)

Of the children:

- 6,350 were those that resulted from the pregnancies; 417 were other children living in the household.
- Initiated an antiretroviral treatment regimen with 3,894 adults and 530 children who were sick enough to be eligible for the therapy.⁵ Antiretroviral therapy uses at least three antiretroviral drugs to suppress the levels of HIV in the body and stop the progression of HIV disease.
 - 80 percent of those patients receiving antiretroviral therapy were still in active care at 30 months of treatment.
 - Targeting the sickest pregnant women and initiating treatment reduced the rate of perinatal HIV transmission to 5.75 percent.
- **Provided HIV treatment to 306 HIV-infected clinical staff members.** This investment in the staff ensured program sustainability and staff commitment to the initiative, Toro reported to RWJF. “It is a strong part of access equity that drives the work of the initiative—whether the access was for pregnant women, children or the clinical staff that supported these families.”
- **Reviewed the progress of pregnant women on antiretroviral therapy compared to nonpregnant women or to men:**

⁵ Antiretroviral therapy (ART) eligibility was determined based on 2003–2004 World Health Organization (WHO) and local guidelines. A detailed explanation is available [online](#).

- Both pregnant and nonpregnant women’s CD4+ cell count nearly tripled after 30 months of antiretroviral therapy.⁶
- Men’s CD4+ count also increased, but at a slower rate. Some thought this was due to starting the antiretroviral therapy with lower CD4+ cell counts, but Patricia Toro of Columbia says that when they controlled for baseline CD4, they still saw this effect.
- **Helped to develop the [World Health Organization’s Prequalification Programme](#) based on [MTCT-Plus Initiative’s request to UNICEF to procure antiretroviral medications](#).** The program ensures that the medicines that procurement agencies supply meet acceptable standards of quality, safety and efficacy. International procurement agencies and, increasingly, countries use the list of prequalified medicinal products to guide bulk purchasing of medicines.

SIGNIFICANCE OF THE PROJECT

In 2004, large numbers of antiretroviral treatment programs were being established across sub-Saharan Africa and other regions with limited resources. These programs were powered by activist campaigns and by major funding from new agencies, including:

- The Global Fund, a public-private partnership and international financing institution dedicated to attracting and disbursing resources to prevent and treat HIV and AIDS, tuberculosis and malaria
- President’s Emergency Plan for AIDS Relief ([PEPFAR](#)), an initiative of the U.S. government to combat HIV/AIDS
- The World Health Organization’s “3 by 5” initiative to provide 3 million people living with HIV/AIDS in low- and middle-income countries with life-prolonging antiretroviral treatment by the end of 2005

The MTCT-Plus Initiative was both influential in the success of these ventures and, to some extent, swept aside by the tide and rapid scale-up, Toro reported. “It was no longer necessary to demonstrate that treatment could be done in Africa. It was being done and mostly by the governments of each nation,” she said.

Also in 2004, based on the model of care pioneered by the MTCT-Plus Initiative, the Mailman School established the [International Center for AIDS Care and Treatment Programs](#) (since 2010 known as ICAP). Funded by a \$125 million grant from the U.S.

⁶ A CD4+ count is a blood test to determine how well the immune system is working in people who have been diagnosed with HIV. The CD4+ pattern over time shows the effect of the virus on the immune system. In people infected with HIV who are not getting treated, CD4+ counts generally decrease as HIV progresses. A low CD4+ count usually indicates a weakened immune system and a higher chance of getting opportunistic infections

government under PEPFAR, ICAP works with national and local partners to support HIV prevention, care and treatment services worldwide.

LESSONS LEARNED

1. In HIV/AIDS work, be prepared to adapt to changes in treatment protocols.

Protocols for prevention, as well as in treatment, changed over time at various paces in the nine countries where the MTCT-Plus Initiative was active. The Columbia team quickly responded to the new evidence and introduced new regimens at participating sites. Making this change meant revising protocols, training staff on the new protocols, reviewing data to ensure the new protocols were being used and troubleshooting along the way. (Project Manager Toro)

AFTERWARD

The MTCT-Plus team continues to make presentations and publish findings from the initiative. One site, in Uganda, will be transitioned from MTCT funds by the end of 2011.

Through the ICAP at Columbia, the MTCT-Plus work lives on. ICAP supports more than 1,100 HIV prevention, care and treatment programs in 14 countries around the world, principally in sub-Saharan Africa, and has enrolled more than 1 million patients using trainings and protocols developed by the MTCT-Plus Initiative.

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