

# Best Practices in the Integration of TB and HIV/AIDS Services

## Experience from Five Countries



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for Technical Assistance



# **Best Practices in the Integration of TB and HIV/AIDS Services**

**Experience from Five Countries:  
Benin, Cambodia, Kenya, Malawi, and Rwanda**

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TUBERCULOSISFOUNDATION

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## Acronyms

AIDS	acquired immune deficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral
CCC	Comprehensive Care Center
CDC	Centers for Disease Control and Prevention
CENAT	National Centre for TB and Leprosy Control
CIPEC	Centres d'Information, de Prospective et de Conseil
CNHPP	National Pneumo-Physiology Hospital
CPT	co-trimoxazole preventive therapy
DHO	district health officer
DHS	Demographic Health Survey
DHMT	district health management team
DLTLD	Division of Leprosy, Tuberculosis and Lung Disease
DOTS	directly observed treatment, short course
DTC	diagnostic testing and counseling
EHP	Essential Health Package
FHI	Family Health International
GFTAM	Global Fund to Fight TB, AIDS and Malaria
HBC	home-based care
HC	health center
HCW	health care worker
HIV	human immunodeficiency virus
HMIS	health management information system
HTC	HIV testing and counseling
ICAP	International Center for AIDS Care and Treatment Programs
IEC	information, education, and communication

IPT	isoniazid preventive therapy
KNCV	KNCV Tuberculosis Foundation
M&E	monitoring and evaluation
MDR-TB	multidrug resistant TB
MOH	Ministry of Health
MSH	Management Sciences for Health
NAC	National AIDS Commission
NAP	National AIDS Programme
NACP	National AIDS Control Programme
NASCOP	National AIDS and STI Control Program
NCHADS	National Center for HIV/AIDS, Dermatology and STIs
NTP	National Tuberculosis Control Program
OI	opportunistic infection
PEPFAR	President's Emergency Plan for AIDS Relief
PITC	provider-initiated testing and counseling
PLHIV	people living with HIV
PMTCT	prevention of mother-to-child transmission
PTB	pulmonary tuberculosis
SOP	standard operating procedure
SWAp	sectorwide approach
TB	tuberculosis
TB CAP	Tuberculosis Control Assistance Program
TWG	technical working group
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
VCT	voluntary counseling and testing
WHO	World Health Organization

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## Executive Summary

In most countries, tuberculosis (TB) services are decentralized up to the most peripheral health facilities and often into the community. On the other hand, HIV/AIDS services are generally much more centralized because scale-up of services, especially of antiretroviral therapy (ART), started only quite recently. As a result, patients who need treatment for both TB and HIV/AIDS may be required to attend two separate clinics and travel long distances to access the services. Lack of integrated TB/HIV services can create delays in diagnosis and treatment, and result in poor compliance and treatment interruption. Patients also face a financial burden related to the cost of travel and other indirect costs, such as long waiting times and potential loss of income.

Although many countries have adopted the interim World Health Organization (WHO) policy on collaborative TB/HIV activities, the level of implementation and integration of TB and HIV/AIDS services at the service delivery points varies from country to country and also from one setting to another within the same country. There is limited information that documents countries' experiences integrating TB and HIV/AIDS services and the lessons learned from those experiences.

The review was conducted by the Tuberculosis Control Assistance Program (TB CAP) in five countries (Benin, Cambodia, Kenya, Malawi, and Rwanda) and focused on capturing the strategies, approaches, and steps that were used to integrate TB and HIV/AIDS services at the point of service delivery. The review also documented the experiences, best practices, and lessons learned in each of the five countries. All this information is gathered in this manual to assist other countries and settings as they endeavor to integrate TB and HIV/AIDS services.

Generally, different models of integrating TB and HIV/AIDS services were found between countries as well as between settings within the same country. For the purpose of this review, the models were categorized into three groups: stand alone, partially integrated, or fully integrated models. In the stand-alone group, TB and HIV services are provided at different service delivery points and linked through a referral system. For the partially integrated group, some HIV/AIDS services are provided in TB clinics and some TB services are provided in HIV/AIDS clinics. When services are fully integrated, TB and HIV/AIDS services are provided in the same delivery point by the same staff in a "one-stop shop."

This manual describes the opportunities and challenges of each model and highlights best practices and lesson learned from the five countries.



## Chapter 1: Introduction— About This Manual

The biological link between the human immunodeficiency virus (HIV), acquired immune deficiency syndrome (AIDS), and tuberculosis (TB) has been evident for some years; HIV is fueling the TB epidemic around the world, and tuberculosis is the leading cause of death in people living with HIV. Globally, in 2007 there were an estimated 9.27 million incident TB cases and 33.2 million people living with HIV (PLHIV). Of all incident TB cases, 1.37 million (15 percent) were HIV-positive, although there is a great variation by region: 38 percent in the African region, 11 percent in the Americas, 9.8 percent in the European region, 4.6 percent in South-East Asia, 3.5 percent in the Eastern Mediterranean region, and 2.7 percent in the Western Pacific region. In 2007 there were an estimated 1.7 million deaths among incident TB cases, of which an estimated 456,000 deaths were HIV-positive TB cases.

In 2004 the World Health Organization (WHO) published an interim policy on collaborative TB/HIV activities. The policy encourages efforts to increase the linkages between TB and HIV programs at the national, subnational, and implementing level. These collaborative TB/HIV activities were aimed at facilitating quick and efficient diagnosis of dual TB/HIV infection and provide valuable preventive and treatment interventions that could reduce mortality among dually infected HIV/TB patients.

In most countries, TB services are decentralized up to the most peripheral health facilities and often into the community. On the other hand, HIV/AIDS services are generally much more centralized because the scale-up, especially of antiretroviral therapy (ART), started only quite recently. As a result, patients who need both TB and HIV/AIDS services may be required to visit two separate clinics and travel long distances to access the services. This lack of integrated TB/HIV services can create delays in diagnosis and treatment, and result in poor compliance and interruption of treatment. Patients also face financial burdens related to travel costs and indirect costs such as long waiting times and potential loss of income.

With further scale-up and decentralization of ART clinics, both ART and TB services are increasingly provided simultaneously in the same health facility. This arrangement is more practical and efficient, particularly for patients. A serious concern is the need to introduce proper TB infection control and prevention measures to prevent spread of TB infections to PLHIV, particularly in countries where multidrug and extensive drug resistance is quite prevalent. Control and prevention require strict TB screening at each point of patient/provider contact, separation of coughing patients from other PLHIV, educating patients on cough hygiene and etiquette, and efficient diagnostic services for TB.

Although many countries have adopted the interim WHO policy on collaborative TB/HIV activities, the level of integration of TB and HIV/AIDS at service delivery points varies from country to country and between one setting and another within the same country. Some of the challenges to effective integration of TB and HIV services are:

- a lack of policy framework on TB and HIV/AIDS integration;
- different levels of decentralization of TB and HIV services;
- availability of resources, both human and financial;
- coordination between TB and HIV/AIDS programs;

- concerns about infection control;
- differences in the epidemiological evolution of TB and HIV/AIDS within and among countries.

Since there is limited information on models of TB and HIV integration at service delivery points, this publication attempts to document the integration experience and share lessons learned from the assessment of five countries in Africa and Asia: Benin, Cambodia, Kenya, Malawi, and Rwanda.

### **Objective of the manual**

This manual identifies and documents experiences and best models used in countries where the integration of TB and HIV services at the health facility level has been successfully implemented. The documentation focuses on the point of service delivery—district hospital or health center—to show how these facilities have moved toward implementing policy and guidelines adopted at the national level. The manual describes the strategies, approaches, and steps that were used as well as the challenges confronted and lessons learned.

By documenting these working models at the health facility level and presenting experiences and recommended approaches, this manual provides information that may help other countries achieve a similar or higher level of integration. It may inspire them to establish more efficient systems, particularly from a patient’s perspective, for managing TB/HIV co-infection.

### **The documentation process**

The manual was developed by the Tuberculosis Control Assistance Program (TB CAP), with funding provided by the US Agency for International Development (USAID). Documentation was gathered in five countries: Benin, Cambodia, Kenya, Malawi, and Rwanda. These countries have differing disease burdens, TB and HIV epidemiological patterns, and geographical characteristics. They were chosen because of their histories with decentralization and integration of TB and HIV diagnosis and treatment services.

Information was obtained in several ways. A standardized questionnaire was developed and pre-tested prior to the country visits. The questionnaire was designed to collect information from key informants and assist in leading focus group discussions. Information was also gathered through site observation and desk review of reports, records, and other relevant literature. In each country, information was collected at national, provincial/regional/district, and peripheral levels, with the most focus at the service delivery level. Documentation was carried out by a team of five people, each visiting one country. Reports detailing each country’s experiences in integrating TB and HIV/AIDS services were produced and shared with the respective countries, and best practices and lessons learned from these countries were later compiled into this manual.

### **Target audiences**

The primary target audience of this manual is TB and HIV managers and health policy makers at national and subnational (regional/provincial and district) levels. Health facility administrators and staff members looking for innovative and efficient approaches to providing TB and HIV services to co-infected patients will also find the manual of interest. Although the review was conducted in countries in Africa and Asia, the experience and lessons learned can be applied in other settings.

## Chapter 2: Models of TB and HIV/AIDS Service Integration

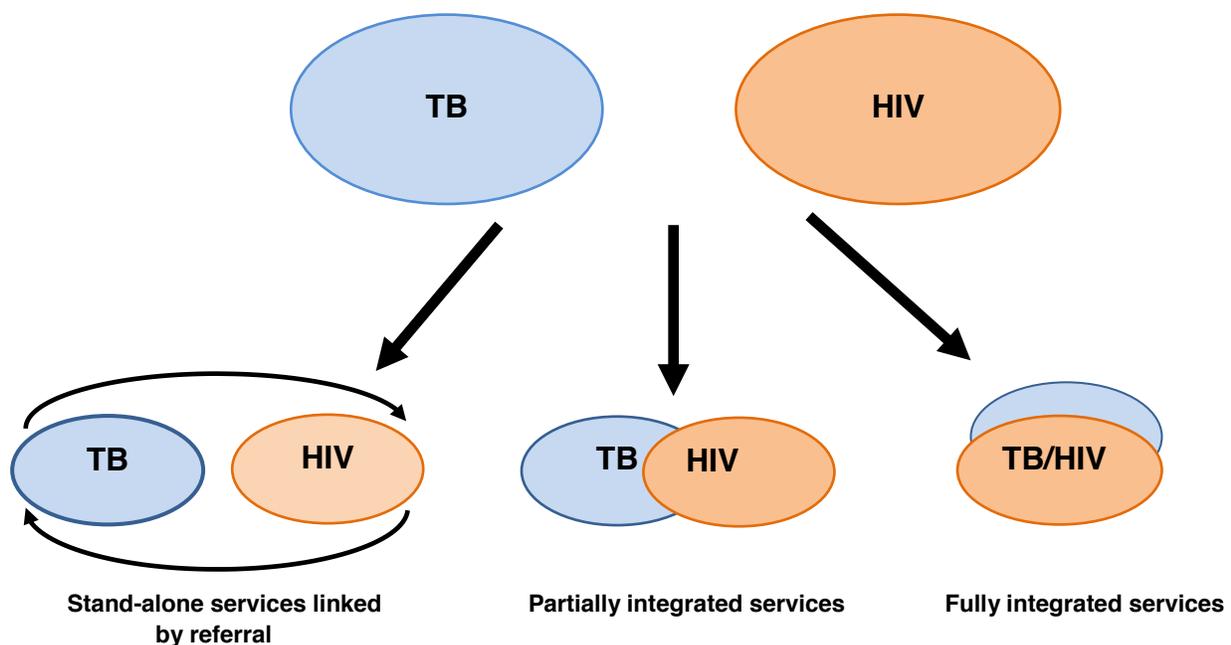
Various levels of TB and HIV/AIDS service integration are implemented in each of the five countries, and these levels can be broadly ascribed to one of three models:

**Model 1: Stand-alone services.** TB and HIV/AIDS services are provided at different service delivery points and linked through a referral system.

**Model 2: Partially integrated services.** TB and HIV/AIDS service delivery points are located in the same health facility; some HIV/AIDS services are provided in TB clinics, and some TB services are provided in HIV/AIDS clinics. Co-infected patients must still visit two different clinics served by different staff to access the full range of TB and HIV/AIDS services.

**Model 3: Integrated services.** TB and HIV/AIDS services are provided in the same delivery point in the health facility by the same staff.

**Figure 1. Three models of TB and HIV/AIDS services integration**



### Model 1: Stand-alone services

TB and HIV/AIDS services are provided at different service delivery points and linked through a referral system. This model is implemented in lower-level health facilities, especially in some health centers and primary health care facilities in Benin, Kenya, Malawi, and Rwanda, as well as in low TB and HIV prevalence countries such as Cambodia. Usually, the health facility provides services for only one disease, either TB or HIV/AIDS. A variant of this model is when both TB and HIV service delivery points are located in the same health facility, but TB and HIV/AIDS services are not integrated and are

provided separately. Provision of integrated TB/HIV services in this model requires good coordination and a referral system between the service delivery points and health facilities.

### **Opportunities**

- TB transmission among patients, especially PLHIV, is not a major concern.
- Can be implemented even at the lowest level of the health care system where only TB or HIV/AIDS services are available.
- Requires minimal additional training for staff compared to other models.
- Requires fewer resources than the other models.

### **Constraints**

- Requires a strong referral system to ensure that patients access services.
- Requires good coordination among the referring service delivery points/health facilities (e.g., coordination of patient information, scheduling, and follow-up procedures).
- May add additional direct and indirect costs for the patient (e.g., transportation).
- May be inconvenient for patients because of the need to visit two clinics to access TB and HIV services.

### **Recommendations**

- May be appropriate for countries with low TB and/or HIV/AIDS prevalence.
- Considered an initial step towards provision of integrated TB/HIV services.
- Stand-alone services are not the most effective or efficient way to provide TB/HIV services.

## **Model 2: Partially integrated services**

With this model, both TB and HIV/AIDS service delivery points are located in the same health facility; some HIV/AIDS services (such as HIV testing and counseling) are provided in the TB clinic and some TB services (such as screening and diagnosis of TB among PLHIV) are provided in the HIV/AIDS clinic. Patients visit two different clinics (TB and HIV/AIDS clinics), which are served by different staff. In this way, patients can get from the second clinic whatever services are missing in the first clinic.

This is the most common model in four of the five countries studied. Both TB and HIV/AIDS services are provided in the same health facility, and there is partial integration of TB/HIV activities. The model is implemented most often in higher-level health facilities, such as hospitals, and in some health centers.

### **Opportunities**

- Provides more comprehensive services to patients than stand-alone clinics.
- More convenient for patients because it reduces time required to follow-up treatment.
- Leverages and shares resources and staff across services.

### **How to synchronise TB and HIV/AIDS services in a health facility**

- Identify all patients who need to attend the clinic. Document the services the patients will require on their appointment days.
- Identify a specific day of the week or month (e.g., every Thursday or first Thursday of the month, depending on the number of patients) to conduct a joint TB/HIV clinic.
- TB/HIV patients who receive both TB and HIV/AIDS services should be given one appointment day for both TB and HIV/AIDS services such as sputum collection, TB drug collection, and ARV medicines.
- On the appointment day, all staff from both TB and HIV/AIDS clinics should attend the joint TB/HIV clinic. The clinic should be attended by TB staff to provide TB drugs and collect sputum for follow-up, as well as a clinician or nurse for ARV provision and for adherence counselling.
- During this clinic day, patients should get the range of TB/HIV services, such as TB treatment, ARVs, and clinical assessment. Patients should also be given appointments for their next visits.

- May have better outcomes/results than stand-alone services.
- Reduces both direct and indirect patient costs associated with attending two different health facilities.

### **Constraints**

- Requires good coordination and communication between TB and HIV/AIDS services to avoid duplication and overlap—or omission—of activities. For example, there must be an understanding as to who will be responsible for providing co-trimoxazole.
- Start-up may require some initial investment, such as training, renovations, or expansion of clinic space.
- Concerns about TB infection control, especially when referring TB suspects/patients to HIV/AIDS clinics.

### **Recommendations**

- This is the most common model of TB/HIV service integration found in most high TB/HIV prevalence countries and settings.
- Partially integrated services are most appropriate at the hospital or health center level where TB and HIV/AIDS services are both available, but full integration is not possible.

### **Case Study 1: Clinic days—partially integrated TB/HIV services at Mangochi District Hospital, Malawi**

TB and HIV/AIDS services at Mangochi District Hospital are provided at the same health facility. Some TB/HIV services are integrated while others are provided as stand-alone services. The HIV services provided at TB clinics include counseling, HIV testing, education on HIV prevention, and co-trimoxazole preventive therapy (CPT). Some of the TB-specific activities in the HIV/AIDS clinic include TB screening among PLHIV, diagnosis of TB suspects, and referral of TB patients to the TB clinic for treatment. TB drugs and ART are provided separately in the TB and HIV/AIDS clinics, respectively.

The unique feature at this district hospital is the synchronization of services so that TB/HIV patients do not have to go to different clinics on different dates. Synchronization of clinic days for TB and HIV clinics started in the fourth quarter of 2008 after it became apparent that it was difficult for TB/HIV patients to follow up their treatments if they came on separate days to collect TB medicines and antiretrovirals (ARVs). Furthermore, it was not efficient; health workers were overburdened by attending the same patient twice. It was also observed that many TB patients did not come back to submit their sputum for follow-up examination because of the frequent visits to the health facility.

#### **Achievements/results**

- Data for the first quarter of 2009 shows that about 83 percent of all TB patients were tested for HIV, compared to 59 percent in the third quarter of 2008, before the synchronization of the clinics. Data also shows that 100 percent of TB/HIV patients in the first quarter of 2009 were on CPT, compared to 88 percent in the third quarter of 2008; 25 percent were on ARV compared to only 18 percent before the synchronization of clinics.
- Synchronization of the clinics has reduced costs for patients. Instead of coming to the health facilities twice, once for each disease, they now come once for both diseases in the same clinic on the same appointment day, thereby reducing both their direct and indirect costs.
- Clinic synchronization is more convenient for the patients, who can now access both services from one place.
- Some patients were not attending the clinics in person before the start of clinic days, and guardians collected their medicines instead. Now, however, patients are attending the clinics in person to get their medicines, which increases the opportunity for clinical assessment and delivery of appropriate care.

#### **Challenges**

- This system is being practiced in a few health facilities, lead by a few enthusiastic staff. The practice has not been systematized as part of the routine practice for care of the patients.
- There are numerous forms and registers to complete because the recording and reporting systems for the two diseases are still separate.

### **Case Study 2: Partially integrated services, Nakuru and Nyeri Provincial General Hospitals, Kenya**

Nakuru and Nyeri are level 5 referral hospitals in the Rift Valley and Central provinces of Kenya, respectively. In both hospitals, HIV and TB care services are provided in separate clinics in the same health facility. The TB clinics in both hospitals offer HIV testing and counseling (HTC) and CPT as well as DOTS. Patients requiring ART are referred to the Comprehensive Care Centers (CCCs), which are in the same facility. TB suspects from the CCC, on the other hand, are referred to the TB clinic for evaluation, diagnosis, and treatment. Human resources are not shared.

#### **Achievements/results**

- Established coordinating meetings between HIV and TB staff to discuss systems and exchange clinical notes on patients.
- Improved the services of both clinics because they are under one administration or management.
- This is a patient-friendly approach because patients do not have to expend extra time or money to travel to another facility.
- An ART physician provides technical oversight to the TB clinic, which is often staffed by a clinical officer and nurses.
- Patients establish good rapport with the health care workers (HCWs), and even those unwilling to be tested change their minds with time and take the HIV test.
- Both provinces have achieved a very high rate of HIV testing of TB patients; all TB patients were offered HTC in both provinces. In the Central Province, 81 percent of the TB patients were tested, 48 percent were HIV positive, and of this group 100 percent were put on CPT and 20 percent put on ART. In South Rift Valley, 83 percent of TB patients were tested, 45 percent were HIV positive, and 94 percent of TB/HIV patients were put on CPT and 31 percent on ART.

#### **Challenges**

- In this model, once patients start feeling better on TB treatment they are likely to avoid ART, which leads to their eventual deaths.
- Patients have an extra hurdle to surmount in accessing services in another clinic in that they have to explain the problem afresh to strangers before gaining confidence in the services.
- This model is not patient friendly because patients waste time seeking or queuing repeatedly before getting services.
- Referral to the Comprehensive Care Centers exposes patients to stigma.

#### **Lessons learned**

- There is potential in having the TB unit provide a full package of TB/HIV collaborative activities for the time patients are on TB treatment, then referring them to the CCC after they successfully complete TB treatment.

### **Model 3: Fully integrated services**

The third model is for provision of fully integrated TB/HIV services. TB and HIV/AIDS services are provided at the same delivery point within the health facility by the same staff; it is a “one-stop shop.” In most countries, fully integrated clinics serve TB/HIV co-infected patients and those with TB only, but do not serve patients who are HIV positive but do not have TB. When co-infected patients successfully complete their TB treatments, they are transferred out of the integrated clinics to HIV/AIDS clinics to continue with HIV/AIDS services, including ART.

This model was applied in all five countries at the health facility level, although implementation varies by country. In Benin, Kenya, Malawi, and Rwanda, when HIV/AIDS services were integrated with TB services, the TB/HIV services were provided in what had been exclusively TB clinics, while in Cambodia, TB services were provided in HIV/AIDS clinics. Although the integrated services model is still in the pilot phase in just a few health facilities in Kenya and Malawi, it has been scaled up to involve many health facilities in Benin and Rwanda.

The fully integrated model described here provides services to TB/HIV patients (and TB patients) and does not provide services to PLHIV who do not have TB.

#### **Opportunities**

- Provides more comprehensive services to patients.
- Minimizes costs and inconvenience for patients—it is a patient-centered approach.
- Decreases barriers to service and may have good outcomes/results because patients get both TB and HIV services early and with few interruptions.
- Improves service/resource planning by enhancing coordination between programs and maximizing and leveraging resources.

#### **Constraints**

- May require additional resources for initial investments (more space, staff, and training).
- Increasing tasks and responsibilities might cause staff to feel overworked.

#### **Recommendations**

- Most efficient and effective way of providing comprehensive TB/HIV services.
- Most appropriate for countries with high TB and HIV prevalence.

### **How to establish integrated TB/HIV services**

In most settings, integrated TB/HIV services were established within TB clinics. TB clinics were converted to become integrated TB/HIV clinics providing all TB and HIV services to TB/HIV patients in same service delivery points with the same staff. Most TB clinics needed modification in order to provide integrated TB/HIV services. Experience from the five countries shows that the following basic modifications were undertaken to convert the existing TB clinics into integrated TB/HIV clinics:

**Renovation and expansion of the clinic:** An integrated TB/HIV clinic should have enough rooms and equipment to provide services for co-infected patients. Typically, three to four rooms are needed for counseling, clinical assessment, and drug dispensation. The renovation should also take into consideration TB infection control issues.

**Increase in human resources:** Depending on the number of patients, four to six staff members are needed to operate an integrated clinic. Staff may be required for HIV counseling and testing, for providing TB DOTS, for recording and reporting, for ART, and for IEC (information, education, and communication). These do not need to be full-time staff dedicated solely to the TB/HIV clinic. With appropriate coordination, human resources can easily be shared between the TB and HIV programs.

**Capacity-building:** A range of courses is needed to address the training needs of different categories of staff. It is important to provide integrated TB/HIV training rather than separate TB and HIV/AIDS trainings. TB and HIV/AIDS program staff should provide ongoing supervision and mentoring of the staff of the integrated clinic.

### **Case Study 3: Fully integrated TB/HIV services in Zomba Central Hospital, Malawi**

TB and HIV/AIDS services at Zomba Central Hospital are integrated in one clinic, and all services are provided under one roof in a one-stop shop. After patients are diagnosed and referred to the TB clinic for registration and treatment, they are also counseled and tested for HIV. If patients are HIV positive, they are assessed for ART initiation. At this hospital, HIV-positive TB patients can start ART within two weeks of starting TB treatment; in other clinics, patients normally start ART after the initial two months of TB treatment. If patients are eligible to start ART, they will be counseled for ARV adherence and will start medications in the same clinic. TB and HIV/AIDS services, including ART, are provided by the same staff.

Zomba Central Hospital started to provide integrated TB/HIV services using this one-stop shop approach in November 2008. Before that, TB and HIV services were provided separately and linked through referral mechanisms. To accomplish integration, HIV/AIDS services were incorporated into existing TB services. Other HIV/AIDS services for patients who do not have TB are provided in an HIV/AIDS clinic located a few meters from the integrated TB/HIV clinic. A number of adjustments were made before the integrated clinic started operating. These included renovations, an increase in human resources, and capacity-building.

**Renovation and expansion of the clinic.** The TB clinic was renovated and expanded from two to four rooms to provide integrated TB/HIV services. The two new rooms are used for clinical assessment of the patients, counseling, and provision of ARV. In addition, basic equipment such as drawers and cupboards were procured to safely store patient files and registers and ensure adequate confidentiality of patient information. The renovation of the clinic also took into consideration TB infection control issues.

**Increase in human resources.** Two additional staff members were recruited to work with the four existing staff. The six staff members' roles were as follows:

- *TB officer:* general TB activities including registration, DOTS, and follow-up of patients
- *Two counselors:* group and individual counseling, HIV testing, and facilitating other laboratory investigations
- *Nurse/clinician:* clinical assessment, ARV initiation, and patient follow-up
- *Two nurses/environmental health staff:* recording and reporting, provision of drugs and information, education, and communication (IEC).

**Capacity-building.** A number of training courses were conducted for staff to equip them with necessary knowledge and skills regarding provision of integrated TB/HIV services. Special training was provided on ARV administration and counseling of patients. Both TB and HIV/AIDS program staff provided regular supervision and mentoring of the integrated clinic staff members.

#### **Achievements/results**

- The proportion of TB patients who are accessing HIV/AIDS services has increased significantly. About 97 percent of all TB patients were tested for HIV in the first quarter of 2009, after TB/HIV services were integrated, compared to 85 percent in the third quarter of 2008 before the integration.
- The ARV uptake was 44 percent and 63 percent before and after the start of integrated TB/HIV interventions, respectively, an increase of 19 percent.
- The TB/HIV integrated services are user friendly and more accepted by patients. During interviews, many patients pointed to the convenience of getting both TB and HIV services at the same health delivery point as one advantage of this approach.

#### **Challenges**

- Implementing integrated TB/HIV services typically requires an initial investment in renovation, recruitment of additional staff, and capacity-building.
- Absence of an integrated TB/HIV monitoring and evaluation (M&E) system is an administrative burden. Although both TB and HIV/AIDS programs have some TB/HIV indicators in their recording and reporting tools, they have separate M&E systems that run parallel to each other. This is a challenge for staff because they have to complete separate TB and HIV/AIDS recording and reporting forms and registers.
- Ensuring patients are transferred to the HIV/AIDS clinic to continue with ART once they complete their TB medications.

#### **Case Study 4: Fully integrated TB/HIV services in Kenya: Karatina and Kericho district hospitals; Unilever tea company hospital in Kericho; Sagana and Sosiot health centers**

Karatina and Kericho district hospitals, the Unilever tea factory company hospital in Kericho, and the Sagana and Sosiot health centers have all established “one-stop shop” TB/HIV clinics. They provide TB/HIV services in one or more rooms in the same clinic, under one or more care providers, in the same health facility. This is the ideal care for PLHIV.

The integrated TB/HIV clinics provide HTC, ART, DOTS, CPT, and nutritional support services, which are highly appreciated and accepted by the community. The Karatina, Unilever, Sagana, and Sosiot clinics attend to all chronic patients (HIV). Care providers claim this has reduced the stigma for dually infected patients.

In Kericho District Hospital, TB and HIV/AIDS services are provided in several rooms close to each other because there are many TB/HIV patients. HTC, clinical review, TB medication, and nutrition support are provided in separate rooms. ART is accessed through the ART clinic pharmacy, which is close by.

#### **Achievements/results**

- All TB patients attending these clinics are offered testing.
- Kericho District Hospital tested 87 percent of all TB patients and 58 percent were HIV positive; 100 percent of TB/HIV patients were put on CPT. However, only 23 percent of TB/HIV patients were put on ART.
- Unilever Hospital tested all patients; 45 percent were HIV positive. Forty percent of TB/HIV patients are on ART, and 100 percent are on CPT.
- Similarly, all TB patients attending the Karatina District Hospital integrated TB/HIV clinic were offered HTC and agreed to be tested; 21 percent were HIV positive, and 100 percent are on CPT. The proportion of TB/HIV patients on ART increased by 45 percent.
- Patients are provided with services in one sitting, which leads to establishing good rapport with the HCWs. Even those who were initially unwilling to be tested change their minds with time and get tested.
- An ART physician provides technical oversight to the TB clinic, which is often staffed by a clinical officer and nurses.
- Patients attending the integrated clinics claim that they are less stigmatized.

#### **Challenges**

- This model requires adequate space and human resources. Therefore, there must be an adequate budget for undertaking renovations to the physical space and hiring extra staff.
- Integrating services increases the risk of transmitting TB to PLHIV, therefore consideration of TB infection control is mandatory before even thinking of integrating TB and HIV services.

**Lessons learned**

- Integrating TB/HIV services is feasible, achieves high HIV testing rates, and increases the number of TB/HIV patients on CPT and ART.
- Leadership and implementation guidelines are required to guide an integrated TB/HIV clinic and help ensure its success.
- Coordination meetings between TB and HIV/AIDS programs are crucial in implementing TB/HIV integrated services.
- Integrated TB/HIV services are viewed favorably by dually infected patients as reducing stigma.
- Decentralization of management of TB and HIV/AIDS favors integrated TB/HIV services.
- Health care workers based in an integrated TB/HIV clinic claim to be more motivated because they can now provide full care to dually infected patients.

## Chapter 3: Best Practices in TB/HIV Integration

Although there was much variation in the approaches and degree of integration of TB/HIV activities among the five countries that participated in this assessment, there were also common experiences. Important lessons can be learned these shared experiences.

### **1. Presence of a national policy/strategy for implementation of collaborative TB/HIV activities is an initial, important stage in the integration of TB and HIV/AIDS services.**

In all five countries there was a national policy or strategy to implement collaborative TB/HIV activities. These policies or strategies underscored the government's commitment to tackling TB/HIV co-infection. The policies/strategies were in various forms and formats and used different titles, but they had a common purpose. The Malawi TB/HIV Operational Framework (2008–2011) outlined the vision and mission for implementation of collaborative TB/HIV activities. The first TB/HIV framework in Cambodia was developed in 2002 and revised in 2008 to take into account the new developments in implementation of TB/HIV activities and to address the gaps identified in the first framework.

The TB/HIV policy guideline in Kenya was developed in 2005. The guideline provides strategies for implementing the three main components of the WHO interim policy: coordination, decreasing the burden of TB among PLHIV, and decreasing the burden of HIV among TB patients. The document also provided guidance to the provincial and district levels on establishing TB/HIV coordinating committees.

The guide for clinical management and epidemiological surveillance of TB/HIV co-infection in Benin was developed in 2006 and revised in 2008. The guideline outlines activities to be implemented by the two programs and how to manage people who are co-infected with TB/HIV. The Rwanda TB/HIV policy guidelines were first developed in 2005 and later revised in 2009. The guidelines have been critical to the adoption of fully integrated TB/HIV services as a national policy.

The existence of policy guidelines in these countries has been critical in the integration of TB and HIV/AIDS services because they:

- Provide leadership and a framework for implementation of TB/HIV activities;
- Focus on strengthening health systems by implementing TB/HIV activities within existing programs and systems rather than establishing new programs and structures;
- Establish a participatory approach to developing policy guidelines between the government, partners, local NGOs, and people living with TB and HIV/AIDS;
- Allow for innovation and regular updates of policy guidelines based on new developments, best practices, and new knowledge (on average most of the guidelines were updated every two to three years);
- Outline the roles and responsibilities of each actor in the implementation of TB/HIV activities;
- Exploit synergies between the National Tuberculosis Control Program (NTP), National AIDS Control Programme (NACP), and partners, avoiding overlap and duplication of activities and leveraging resources.

## **2. Good leadership and management are important in integration of TB and HIV/AIDS activities.**

The NTP and HIV/AIDS programs provided leadership through TB/HIV coordinating mechanisms and technical working groups. Although the title and composition of the coordinating mechanisms vary from one country to another, they share the critical role of providing oversight on implementation of TB/HIV activities.

- In Kenya, the TB/HIV technical working group (TWG) was composed of partners from TB and HIV/AIDS programs as well as international and local partner organizations.
- The National Steering Committee in Benin was composed of key representatives from the national TB and HIV/AIDS programs.
- The secretariat of the TB/HIV working group in Malawi is at the NTP, although the meetings were jointly chaired by the program managers from TB and HIV programs.
- The TB/HIV working groups in Rwanda and Cambodia were composed of members from the TB and HIV/AIDS programs together with partners working on TB/HIV in the country.

In all five countries, the TB/HIV working groups were active primarily at the national level and less active at subnational levels. The functions and mandates of the national TB/HIV working groups differed from one country to another, but they all played a critical role in integrating TB/HIV services by:

- Developing and reviewing guidelines, and setting standards on implementation of collaborative TB/HIV activities;
- Reviewing and appraising implementation of strategic, annual, and quarterly plans for collaborative TB/HIV activities at all levels;
- Receiving and appraising periodic technical and financial progress reports;
- Appraising and approving terms of references for backstopping consultants for collaborative TB/HIV activities;
- Overseeing implementation of operational research, monitoring, and evaluation to develop sound, evidence-based best practices in collaborative TB/HIV activities;
- Participating in or advising on adoption of new national, international, and global initiatives on collaborative TB/HIV activities;
- Providing a forum for direct interaction and communication between TB and HIV/AIDS programs and other partners;
- Meeting on a quarterly basis and whenever a need arises.

## **3. Partnership and collaboration were critical to successful TB/HIV integration.**

TB/HIV activities in all five countries were implemented within the framework of the existing TB and HIV programs. No new programs or structures were created to implement TB/HIV activities, but the two programs and partners identified activities to be implemented by each program/partner and those ones that could be shared. In all five countries the roles and responsibilities of each program and partners at all levels were outlined.

- In Cambodia, the National Center for TB and Leprosy (CENAT) and National Center for HIV/AIDS, Dermatology and STIs (NCHADS) developed standard operating procedures (SOPs) which clearly state the roles and responsibilities of each program. NCHADS is responsible for TB/HIV treatment and care including ART, CPT, and isoniazid preventive therapy (IPT), while CENAT is responsible for the supply of medicines for TB treatment and IPT.
- In Benin, the NTP is responsible for the procurement of co-trimoxazole and its distribution to TB/HIV patients.
- In, Benin, Kenya, Malawi, and Rwanda, it was agreed that TB treatment would continue being provided only at TB clinics or integrated TB/HIV clinics and not at HIV/AIDS service delivery points.

Partnership and collaboration with international and local organizations have also contributed to the successful integration of TB/HIV activities. An important element of these partnerships is good coordination between the National TB and HIV/AIDS programs on one hand and local and international partners on the other. Coordination and harmonization of activities helps leverage resources, avoid duplication of activities, and prevent overlap between implementing partners. Coordination of activities helps the partners to work and complement government efforts.

The assessment in five countries showed areas where partners are well coordinated and able to harmonize their activities; TB/HIV activities are well integrated compared to areas which are not coordinated. Mapping and assigning partners' areas of implementation both at country and regional/district levels are critical for successful implementation of integrated TB/HIV activities. This will avoid both duplications and overlap of activities.

In addition to providing the additional resources required to effectively integrate TB and HIV/AIDS—such as capacity-building and additional physical space, equipment, and supplies—partners have also provided valuable technical expertise in integrating TB/HIV activities through in-country and international technical assistance, and by sharing experiences and best practices.

Good communication between different partners at all levels was also a key factor in facilitating integration of TB/HIV services. The communications took place at general and technical meetings, workshops, and presentations. At the health-facility level, such as at Zomba Central Hospital in Malawi, daily and weekly clinical meetings provided a good platform for discussion of the integration of TB and HIV/AIDS services.

#### **4. Implementation guidelines and training materials facilitated TB/HIV integration.**

The integration of TB/HIV activities in all five countries was facilitated by the presence of various implementation guidelines and other important tools, including training guidelines, revised reporting and recording forms, and cards and registers that enabled data collection of TB/HIV indicators. Training of staff on TB/HIV in Benin, Kenya, and Rwanda was coordinated by the TB program while in Cambodia and Malawi it was mainly facilitated by the HIV/AIDS program. Although the content of the training varied, key elements such as diagnostic counseling and testing for TB patients, management of patients, and monitoring and evaluation were present in all TB/HIV curriculums.

### **Case Study 5: Rescheduling reporting of TB/HIV data in Malawi**

The Malawi NTP's recording and reporting system follows the WHO-recommended cohort quarterly system; all patients registered and recorded in one quarter are reported together as a cohort in the following reporting quarter. The advantages of this system are that it is easy to follow up and information can readily be used for planning and management purposes as well as to compare trends over time. It is also easy to implement and avoids confusion among staff. However, one of the main challenges to using this system for TB/HIV patients is that the quarterly cohort reports "miss" some TB/HIV patients who have not accessed HIV/AIDS services in that quarter or whose HIV/AIDS status has not been updated.

The cohort quarterly report "misses" some patients in the following ways:

- The NTP recommends providing counseling and testing for HIV among TB patients when they start treatment, but some patients will take more than three months (one quarter) before they consent to be tested. Because the reporting system requires that these patients be reported in the next quarter, the report will not include these patients.
- The guidelines require that ARV treatment among TB/HIV patients be delayed for from six to eight weeks to reduce the risk of adverse reactions to the medicines. Patients who are registered and start TB treatment in the second or third month of the quarter (i.e., for January–March, those registered in February or March) will not be able to be reported in that quarter.

#### **Achievements/results**

The TB coordinators in Mangochi and Zomba districts in Malawi came up with an innovative solution to overcome the challenge described above. When reporting on TB/HIV data, they reschedule the reporting period and delay for at least one quarter. For example, TB/HIV patients registered in the first quarter of 2009 would be reported in the third quarter 2009. Under a normal reporting schedule, TB/HIV patients registered in the first quarter should be reported at least in the second quarter. The "skipping" of one quarter to report will give enough time for patients who consent for HIV testing after being in TB treatment for three months to be included in the report, and also will allow eligible TB/HIV patients to start ARV because all of them would have been in TB treatment for at least three months.

#### **Challenges**

- There is no study in Malawi that has investigated the proportion of TB/HIV patients that are missed with the current TB/HIV recording and reporting tool.
- The system of rescheduling and delaying reporting of TB/HIV data is not implemented in all districts and health facilities in the country. This might create confusion when compiling data.

### **5. Review of recording and reporting forms and registers was a key factor in scale-up of integrated TB/HIV activities.**

All five countries revised their recording and reporting systems to accommodate TB/HIV indicators. In many countries, this was among the first activities carried out before the implementation of TB/HIV activities began. The TB/HIV indicators included in the revised reporting systems included TB patients tested for HIV, TB patients who tested HIV positive, and TB/HIV patients on co-trimoxazole and ARV treatments. Although the revision of recording and reporting materials was crucial in early implementation of TB/HIV activities, further integration of TB/HIV recording and reporting systems faced several challenges, including:

- TB/HIV indicators were not adequately recorded and reported in HIV/AIDS clinics;
- The two programs maintained (and still implement) two parallel recording and reporting systems that “do not talk to each other.”
- It was challenging to report TB/HIV indicators according to the reporting schedule (quarterly) because some patients would not have accessed TB/HIV services such as HIV testing, ARV, and so on.

### **6. Implementing innovative approaches and experience sharing are important for effective TB/HIV integration.**

All five countries have been implementing innovative approaches to integrating TB/HIV activities at service delivery points. Some of the countries piloted these approaches prior to nationwide implementation, and some countries preferred not to wait. Malawi was one of the three countries to pilot the WHO pro-TEST initiative (1999–2002) before countrywide implementation. Integrated TB/HIV interventions are piloted in a number of districts, including Lilongwe and Zomba. The experience from these sites will be shared before further scale-up. Rwanda adopted one-stop clinics for TB/HIV services as a national strategy in 2007, but it was initially rolled out in two pilot sites. Currently most health facilities in the country provide integrated TB/HIV services at a one-stop shop.

An important consideration when implementing integrated TB/HIV approaches is finding models that are patient-centered, efficient for the service providers, and effective in delivering services. Experiences from these new sites, including the resources used to implement different models, should be documented to inform policy decisions and budgeting and to facilitate scale-up of the intervention in other parts of the country.



## Chapter 4: Lessons Learned

The three integration models have features that clearly differentiate one from the other, but in practice most countries use a combination of models. It varies depending on the level of the health facility, the type of services provided, available resources, the evolution of the TB and HIV/AIDS epidemics, and the stage of implementation of TB/HIV activities.

Generally, the separate and stand-alone TB or HIV/AIDS services were found at the primary health care (PHC) level, while the integrated services were mainly implemented at the secondary or tertiary levels of the health care system. The integration of TB/HIV services also depended on the type of health services provided at the health facility. If the health facility provides only TB or HIV/AIDS services, but not both, it is easier to link the services by referring the patients between the two health facilities. This is how TB/HIV services started in many countries.

Capacity-building and increased infrastructure and human resources may be required when integrating TB/HIV services. In many countries, TB services are much more decentralized than HIV/AIDS services depending on how the TB and HIV epidemics evolved in each country. Many countries have strong and high-functioning TB programs, but the HIV/AIDS programs are relatively new, and services are currently being scaled up to involve more health facilities.

Experience from the five countries shows that when HIV/AIDS services are scaled up to involve many health facilities, TB/HIV services are increasingly provided through an integrated approach. More health facilities move from providing stand-alone services to partially integrated services or, in some cases, fully integrated services. The partially integrated approach is now the most common model of provision of TB/HIV services in four of the five countries, especially when both TB and HIV/AIDS services are provided in the same health facility. The integrated services are still provided in a few health facilities in pilot sites or centers of excellence. In Rwanda, the integrated TB/HIV model has been scaled up nationwide to involve most public health facilities throughout the country.

Countries are implementing a combination of all three models of TB/HIV integration. The implementation of TB/HIV activities tends to evolve from stand-alone models to partially integrated activities and, ultimately, to a fully integrated approach. All three models are useful in their specific contexts. The choice of a particular model is based on many factors, including the demand for services, capacity of the health facility, available resources, infrastructure, the burden of diseases, and the ability of the staff to innovate. The following eight factors influenced the choice of the integration model.

### *1. Provision of patient-centered treatment approach;*

The choice of the model of provision of TB and HIV services for co-infected patients was driven mainly by the concerns of providing services that were patient-focused and minimized inconveniences to the patient such as long waiting times, lengthy travel times, and direct and indirect costs.

## *2. Provision of comprehensive services*

The need to provide comprehensive services to co-infected patients was the reason for TB and HIV/AIDS services integration in many health facilities. Integration was also motivated by the WHO TB/HIV saying: “two diseases, one patient.” Integration of TB and HIV/AIDS services was viewed as the best approach to provide comprehensive services to a single patient while targeting both diseases.

## *3. A high burden of TB and HIV/AIDS*

Countries or health facilities with high TB and/or HIV/AIDS burdens tend to opt for more integrated TB/HIV services than countries or health facilities with a low burden.

## *4. Extent of decentralization of TB and HIV/AIDS services*

The availability of TB and HIV/AIDS services in the health facilities is the main determinant for the level of integration of TB/HIV services. If TB and HIV/AIDS services are available within the same health facility, it is relatively easy to partially or fully integrate them.

## *5. Availability of resources*

Inadequate availability of resources was the main constraint for integrating TB and HIV services. Resources are needed for capacity-building, deployment of additional staff and, in some cases, renovation and supply of basic equipment.

## *6. Political commitment and leadership*

Support by committed leaders at all levels is important to motivate staff to provide integrated TB/HIV services. Leadership is required to encourage the staff and dispel fears and misconceptions that integrating services increases workload and exposes staff to a greater risk of acquiring diseases. Leadership is also required to mobilize resources and focus efforts on realizing the objectives and targets.

## *7. Innovation and partnership*

Implementation of innovative integration approaches were led by a few motivated staff who sought new ways of providing services to patients. These staff members were supported by partners and local officials. Experience showed that when local officials, partners, and staff are ready for change and work together, a new efficient way of providing services to the patients is found.

## *8. Learning by doing*

Many countries and health facilities have learned how to provide integrated TB and HIV services by simply doing it. They discovered that it is accepted both by patients and staff, and they demonstrated to others that an integrated system has good outcomes. Many of the best models of TB and HIV/AIDS started as pilot projects, and the experiences from these projects were shared and scaled-up to other areas or countries.

## Chapter 5: Country Summaries

### Benin

#### *by Odile Ferroussier, International Union against Tuberculosis and Lung Disease*

**Country background.** The Republic of Benin is one of the smallest countries in Africa (115,000 sq. km.) and shares borders with Burkina Faso and Niger to the north, Nigeria to the east, and Togo to the west. Divided into 12 provinces, its capital is the city of Porto-Novo.

Benin had an estimated population of 8 million in 2008,<sup>1</sup> for a density of 68 inhabitants per square kilometer. The population is young (47% are 15 years of age or younger), concentrated in the south, and predominantly rural (58%). Life expectancy is 59 years. The infant mortality rate is approximately 90 per 1,000, and the maternal mortality rate is 475 per 100,000 live births. Polygamy is common.

**Health system and health indicators.** Benin's health system has three levels: national, provincial, and peripheral (or health zone). At the peripheral level, care is provided at zone hospitals, municipal health centers, dispensaries, and village health units. About 1,000 private not-for-profit facilities (run primarily by religious groups) account for an estimated 40 percent of consultations.<sup>2</sup> For 2001–2005, the budget allotted to the Ministry of Health represented on average 8.9 percent of the national budget, or US\$11.50 per capita. Total health expenditures per capita in 2004 were estimated at US\$28.<sup>3</sup> Malaria, acute respiratory infections, and diarrhea are the most common causes of morbidity in Benin.

**HIV/AIDS situation.** Benin has a generalized, low-prevalence HIV epidemic (1.2 percent from 2006 DHS<sup>4</sup>) and heterosexual sex is the primary transmission mode. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), there are 64,000 PLHIV; prevalence is higher in urban settings and twice as high among women than among men. Populations at a high risk include urban sex workers (prevalence of 26.5% in 2008) and their clients (6.5%), truck drivers and other mobile populations, and TB patients (16%).

In 2000, Benin adopted its first National Strategic Framework, which included the creation of a multi-sectoral National AIDS Control Committee within the Ministry of Development, Economy and Finance to coordinate the national response. The National AIDS Program (NAP) guides the health sector's response to the epidemic. The Centres d'Information, de Prospective et de Conseil (CIPEC) are the NAP's decentralized structure at the provincial/intermediate level. Patients were able to access free ART starting in December 2004. There are currently 53 HIV care/ART sites located in public and private primary care level facilities and district hospitals. Between 12,000 and 15,000 patients are reported to be on ART, and another 20,000 are eligible.<sup>5</sup> The laboratory network for HIV includes the National

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<sup>1</sup> Extrapolation based on 2002 census.

<sup>2</sup> Global Fund. (<http://portfolio.theglobalfund.org/Country/Index/BEN?lang=en>) accessed on July 20 2010.

<sup>3</sup> WHO. World Health Statistics 2008. ([http://www.who.int/whosis/whostat/EN\\_WHS08\\_full.pdf](http://www.who.int/whosis/whostat/EN_WHS08_full.pdf)) accessed on 30 May 2008.

<sup>4</sup> The third round of this survey (DSHB-II) was conducted by Benin's National Institute of Statistics and Analysis and ORC Macro. A random sample of 9,500 men and women were tested for HIV.

<sup>5</sup> <http://portfolio.theglobalfund.org/Country/Index/BEN?lang=en>.

Reference Laboratory, CIPEC laboratories, and zone hospitals' laboratories, which provide the minimum package of HIV lab services for free.

TB situation. The latest WHO estimate of TB incidence is 91 per 100,000 population, or approximately 8,000 new cases per year (all forms). For smear-positive TB, it is 39 per 100,000 population and 3,500 cases, respectively. The case detection rate was 86 percent in 2006, and the number of TB cases reported annually has increased. There were a total of 3,734 registered TB cases (all forms) in 2006. 79 percent (2,943) were smear-positive (new and retreatment) cases. In 2007, the treatment success rate was 87 percent.<sup>6</sup>

There are 54 TB clinics located in primary health care centers and district hospitals, with a few at mission hospitals. All TB clinics are equipped to perform smear microscopy, and they keep a TB register. Two hospitals, the National Pneumo-Phtysiology Hospital (CNHPP) in Cotonou and the provincial Pneumo-Phtysiology Hospital in Porto-Novo, specialize in lung disease. Together they register approximately 40 percent of all TB patients in the country.

Microscopy centers have been set up in dispensaries and small health centers in remote rural areas. Smear-positive patients are then referred to the closest TB clinic for registration and treatment. To decentralize treatment to a location more convenient for the patient, some patients elect to receive their treatment at a DOTS center, a public or private health facility that is not accredited as a TB clinic. These DOTS centers dispense anti-TB drugs to patients, but patients must go to the TB clinic where they are registered for sputum checks. Benin has engaged in public-private mix partnerships in TB control for a while. Roles and requirements for private facilities are the same as those in public health structures.

#### **Implementation of collaborative TB/HIV activities**

- **Current situation.** Integration of HIV activities into TB services started in late 2005. A National Steering Committee with key NTP representatives serves as a technical working group. The NAP and NTP's respective responsibilities are clearly delineated. The NTP has appointed a TB/HIV focal person. Provider-initiated testing and counseling (PITC) for HIV and CPT for HIV-positive TB patients have been integrated fully into TB services in all TB clinics since 2006. Access to ART for HIV-positive TB patients is based on existing ART sites and the NAP's scale-up plan. At accredited health facilities, HIV-positive TB patients receive ART on site, sometimes from the same health care worker who provides TB services. Otherwise, HIV-positive TB patients are referred to the nearest facility providing ART. Benin does not have a national IPT policy for PLHIV. HIV patients are assessed for TB symptoms and referred to a TB clinic for diagnosis and evaluation, but national-level statistics are not available.
- **Achievements.** In 2006 a *Clinical Care Guide for Co-infected Patients* was drafted jointly by the two programs to combine all relevant guidelines into one document for use by front-line health workers. All TB patients are offered HIV testing and counseling (HTC), which is also offered to TB suspects if providers suspect HIV infection. PITC uptake has been consistently high (97%) throughout the country and provides reliable surveillance information on HIV prevalence among TB patients. TB patients' partners and children are also encouraged to undergo testing, although the

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<sup>6</sup> WHO. Global Health Atlas Database. (<http://apps.who.int/globalatlas/dataQuery/default.asp>) accessed on May 13 2009.

acceptance rate remains low. Excellent uptake of CPT (96%) among HIV-positive TB patients has been achieved.

Over time, integration in ART provision has progressed. The NAP includes TB clinics in the list of priority sites for ART scale-up. As ART sites increased (to 53 in 2009), TB patients' on-site access to ART expanded considerably: in 2006, 40 percent (20/50) of diagnostic testing and counseling (DTCs) were located in ART-accredited health facilities. By 2008 on-site ART was available at 63 percent (34/54) of DTCs. Over the entire pilot period, 42 percent of co-infected patients at pilot sites started or continued ART during anti-TB treatment.

- **Challenges.** Key decisions were made by the National Steering Committee, but meetings have been irregular, mostly due to members' unavailability. Also, it has been difficult for HIV-positive TB patients to gain access to ART. In some cases, providers are reluctant to initiate ART during TB treatment because they are concerned about patients' adherence and/or adverse reactions resulting in worse outcomes. In some ART sites, their capacity is limited, and they are unable to meet the demand. Even though former TB patients are eligible for ART regardless of CD4 count, some patients reported being told ART would only be provided once their CD4 count was under a certain threshold. Others were given appointments far into the future, ART initiation being thus effectively delayed.

#### **Best practices in integration of TB and HIV activities and lessons learned**

- **PITC by TB staff:** TB nurses and smear microscopy technicians are trained to provide pre- and post-test counseling and to perform rapid HIV testing, which has eliminated the need to refer TB patients to a voluntary counseling and testing (VCT) center for testing and contributed to the high testing uptake. The availability of the HIV test at the TB clinic has also helped to convince partners and children to get tested because stigma is still associated with presenting at a VCT center.
- **Establishing clear responsibilities for the NTP and the NAP.** The NAP committed to providing all DTCs with rapid tests. The NTP committed to ensuring that TB clinics offer HIV testing to all TB patients and their partners and children, and to distributing co-trimoxazole to DTCs. The NAP agreed to accredit TB clinics (including the two national TB hospitals in Cotonou and Porto-Novo) as ART sites so they could prescribe ART to co-infected patients. The NTP and NAP agreed to follow each other's guidelines and algorithms. This delineation has made it easier for health care workers to determine whom to contact in case of problems, and the collaboration also creates interdependence so that when rapid HIV tests run out, the NTP procures its own stock to limit interruptions in testing.
- **Adopting a program, rather than a project, approach.** The MOH adopted a programmatic approach to TB/HIV integration, and all TB clinics in the country implement the same set of activities (PITC, CPT, and ART provision/referral) to ensure that health care workers understood that these activities were now part of regular TB care. Moreover, within each province, health care workers were trained all together, regardless of whether they were from a pilot site or a non-pilot site. In addition to maintaining staff cohesion, this approach ensured that nurses and laboratory technicians would be ready to work in any TB clinic in the country, as staff transfers are frequent.

Finally, it was decided to not give financial incentives to health care workers at pilot sites, even in situations where other staff within the same facility were at the time being financially

compensated (by other external HIV projects) for what was presented as “extra” work. This reduced the risk that activities would slacken as motivation decreased when incentives stopped at the end of the pilot phase.

- **Importance of supervision.** Routine supportive supervision is a complement to training. Each TB clinic is visited quarterly by a national-level team, including a physician from CNHPP and a representative from the National TB Laboratory. It takes two national-level teams approximately two weeks to cover the entire country. Representatives from departmental and district health authorities also participate in the visit in their respective catchment areas. A supervisory checklist is filled out at each facility and the checklist is reviewed during the next supervisory visit and progress assessed. After each visit, the national team leads a debriefing session attended by representatives from each facility.
- **Referral/counter referral systems when ART cannot be provided by the health worker providing TB care.** At the national TB hospital, operations research showed that patients who were instructed to go to a NAP ART site at the end of TB treatment for ART initiation were unlikely to do so. Education was reinforced and the TB hospital began communicating with the ART sites regarding each patient. At smaller TB clinics, the staff are aware that they need to guide patients closely through the process. For example, at Allada TB clinic, soon after TB patients are diagnosed with HIV, the TB nurse walks with them to the ART room to introduce them to the ART nurse so the patients will be familiar with the room and the staff when they are ready to start treatment. At another clinic, the TB nurse accompanies patients to their first appointments at the zone hospital’s ART site to make sure the patient has connected with ART services. In many instances, phone calls are exchanged between facilities (using the staff’s personal mobile phones) to announce the arrival of a patient or inquire whether the patient has presented.

The effectiveness of such processes rests entirely on health care workers’ commitment and dedication. Co-locating TB services and ART sites within the same facility not only alleviates the burden of co-infection on patients, it also decreases the pressure on health care workers as they try to ensure continuity of care for their patients.

## **Cambodia**

**by Chawalit Natpratan, Family Health International**

Country background. Cambodia is in the South-East Asia region and has a population of about 14 million. The gross domestic product per capita was US\$360 (World Bank, 2006). The literacy rate was 85 percent for men and 64 percent for women. Cambodia has 24 provinces and cities and 183 administrative districts<sup>7</sup>.

Health systems. The Ministry of Health is responsible for vertical programs from the national to the district levels. The Provincial Health Department is the middle-management level and supervises operational districts, which are a group of administrative districts that act as functional units at the lowest management level. Operational districts have one designated referral hospital (RH) and network of health centers (HCs). There are 24 provincial health departments and 76 operational districts with 69 RHs and 966 HCs<sup>8</sup>.

HIV/AIDS situation. The National Center for HIV/AIDS, Dermatology and STIs (NCHADS) and the National AIDS Authority (NAA), are responsible for HIV/AIDS prevention, treatment, and care. At a provincial health department, a provincial AIDS officer is responsible for all HIV-related activities. An operational district AIDS coordinator is responsible for each operational district. In 2006, HIV prevalence was 0.9 percent, compared to 2 percent in 1998. In 2000, HIV treatment and care was provided only in the capital by international NGOs, and pilot projects started in 2003. In late 2005 Cambodia was the only country in the Western Pacific Region to achieve the 3 by 5 WHO targets. By the end of 2008, 32,000 PLHIV received ART which was estimated to be 95 percent of the targeted PLHIV.

TB situation. The National Center for Tuberculosis and Leprosy (CENAT) and the National TB Program (NTP), are responsible for the TB control program. Since 2004 the NTP has supported provincial health departments and operational districts to implement TB DOTS through a network of RHs and HCs. The TB supervisor coordinates TB activities at each provincial health department and operational district. Cambodia ranks number 21 among 22 TB high burden countries. Each year, about 35,000 to 40,000 new cases of all types of TB are detected. In 1997, WHO estimated that 64 percent of the population was infected with TB. In 2008 the case detection rate was approaching 70 percent, and the treatment success rate was over 90 percent.

### **Implementation of collaborative TB/HIV activities**

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<sup>7</sup> Census of Cambodia 1998, Ministry of Planning, Cambodia

<sup>8</sup> Health Coverage Plan, March 2006, Cambodia

- **Current situation.** NCHADS has included TB patients as one of the sentinel groups since the beginning of HIV sentinel surveillance in 1995. HIV prevalence among TB patients increased from 2.5 percent in 1995 to 11.8 percent in 2003 and declined to 7.8 percent in 2007. After 2003, the NTP conducted HIV surveys among TB patients by itself with technical and financial support from partners. NTP and NCHADS used the data from surveillance to guide their TB/HIV program planning.
- **Achievements.** In 2000, the first TB/HIV International Symposium was held to raise awareness, and in late 2002 the first National TB/HIV Framework was developed by the NTP, NCHADS and partners. From 2000 to 2003, TB/HIV activities (primarily ART and research) were managed by international NGOs and confined to the capital. In 2004, TB/HIV activities were implemented in four pilot provinces supported by four partners, and in 2004–2005, when the continuum of care activities were scaled up nationwide, TB/HIV was also scaled up
- **Challenges.** Despite the well-coordinated activities on TB/HIV, some areas need improvement. The NTP and NCHADS have recognized the gaps and are addressing them through ongoing quality improvement.
  - The M&E System needs improvement in the timeliness, completeness, and accuracy of records and reports. The NCHADS uses a computerized database, while the NTP still uses paper records and reports. Using information to make decisions is not happening consistently throughout the provincial health districts and operational districts.
  - TB/HIV IEC materials need to be developed because none currently exist in the field.
  - Quality of services regarding the diagnosis of sputum-negative TB/HIV co-infected patients and linkage of TB/HIV services to multidrug resistant TB treatment facilities need improvement.
  - TB Infection Control needs to be addressed urgently to prevent TB contamination among PLHIV.

#### **Best practices in integration of TB and HIV activities**

- **Commitment and leadership from the government.** The MOH has an open policy on TB, HIV/AIDS, and TB/HIV and endorsed the first TB/HIV Framework in 2002. When TB/HIV activities were scaled up in 2004–2005, NCHADS and the NTP issued the *Joint Statement of NCHADS and NTP for Strengthening Care and Treatment Strategies of HIV/AIDS-TB* and committed to the following:
  - guiding and supporting TB screening among PLHIV and HIV testing of TB patients;
  - comprehensive services for TB/HIV co-infected people;
  - sharing responsibility for logistics and trainings;
  - Strengthening M&E.

In 2006 and 2007 NCHADS and the NTP issued two SOPs regarding screening of HIV and TB among patients with TB and PLHIV, respectively.

- **Coordination at all levels and partner involvement.** From 2003 to 2006, TB/HIV activities were coordinated by the National Sub-Committee on TB/HIV and then, in 2007, the Technical Working Group was established. Each national center assigned one TB/HIV national level coordinator to

manage day-to-day collaboration. There are regular Continuum of Care Committee meetings at the provincial health district for coordination of activities in facilities and communities. Provincial AIDS officers and TB supervisors attend continuum of care meetings together with NGOs and PLHIV representatives and conduct regular TB/HIV coordination meetings. In referral hospitals, as in Maung Russey Hospital, TB/HIV activities are integrated and everyone works together as one team.

International and local NGOs and UN agencies work closely with NCHADS and the NTP and as members of the TWG on TB/HIV. Each national center has joint work plans from operational districts to the national level where partners are actively involved. At the national level, the TWG coordinates the TB/HIV work plan.

NTP and NCHADS continuously support and supply provincial health districts, operational districts, RHs, and HCs to implement TB/HIV activities. TB and HIV staff are trained on the standard packages of TB/HIV management. Financial support comes from several Global Fund proposals, the US Government (USAID and CDC), World Bank, Japan International Cooperation Agency, and United Nations agencies.

- **Monitoring and evaluation:** Both programs have adjusted their M&E systems to capture TB/HIV indicators. The NTP tracks indicators on HIV testing and counseling among TB patients, CPT, and ART. NCHADS tracks indicators on TB screening among PLHIV (intensified TB case finding) and IPT. Currently, TB supervisors at operational district and provincial health district levels collect all indicators and report them to the NTP. In Battambang, the provincial health district regularly analyzes and uses the data on TB/HIV for program improvement and planning.
- **Coverage of services:** TB DOTS services are provided in all 69 referral hospitals and 870 health centers in 76 operational districts. Most health centers transfer sputum samples to referral hospitals for diagnosis. If results are positive, the patients receive DOTS at the health centers or via community-based DOTS.

HIV/AIDS services are provided in 51 OI/ART sites in 51 operational districts and 217 VCT sites nationwide. Walk-ins and referrals receive HIV testing and counseling and, if they are HIV positive, are referred for further investigation, prophylaxis, and treatment at OI/ART sites. TB screening of PLHIV is emphasized in SOPs for the first and follow-up visits. The TB screening package includes history-taking for suspected symptoms, physical examination, sputum smear, chest X-ray, and abdominal ultrasound, if indicated. Sputum culture is not regularly done. For PLHIV with inactive TB, there are three OI/ART sites that provide IPT as pilot sites. Two of these sites are in Battambang province.

In Battambang, four referral hospitals provide care and treatment to PLHIV with connections to 72 (out of 75) health centers and HBC activities managed by NGOs and CBOs. In 2008, 729 PLHIV from voluntary confidential counseling and testing sites were referred for TB screening. Of this number, 713 (97.8%) were screened at OI/ART sites in these four hospitals, and 163 (22.9%) of them were detected with active TB and put on DOTS. Forty-four (6.2%) of them were enrolled for IPT in Battambang and Maung Russey referral hospitals.

Nationwide, there are 68 operational districts implementing TB/HIV activities. Workers at more than 700 health centers were trained to refer TB patients (Option 1) or their blood samples (Option 2) to

VCT sites, according to SOPs. For Option 2, the health center staff have been trained to provide pre- and post-test counseling and refer HIV-positive TB patients for further services. Partners support transportation costs for Options 1 and 2 because most TB patients cannot afford them. At 51 OI/ART sites, detected TB patients will be referred to on-site VCT.

- Service integration at the facility and home-based care (HBC) level. TB and HIV services are integrated in 51 operational districts and at OI/ART sites in 51 RHs. In some OI/ART sites, TB and HIV doctors and nurses work on one team (e.g., at Maung Russey Hospital in Battambang). TB patients detected in hospitals or transferred from health centers and home-based care teams are counseled and tested for HIV. TB patients can opt out if they do not want to be tested. Likewise, OI/ART sites are recommended to screen PLHIV for TB at first and conduct follow-up visits. All TB/HIV patients should receive CPT and are considered for ART eligibility. The patients are asked to be taken care of at home by HBC NGOs working closely with hospital staff. HBC teams make visits at home for adherence and social supports.
- PITC at hospitals and health centers. The NTP and NCHADS have initiated a referral system for TB patients to travel to VCT sites with support from partners on transportation of patients or blood samples. The system works well in some areas, and the uptake of TB patients increased from 10.6 percent to 72.1 percent in two years.

#### **Lessons learned**

- Political commitment of both national TB and HIV/AIDS programs is the most important factor of TB/HIV collaborative activities;
- Clarification of roles of each national program ensured technical, financial and logistical support to implementers in provincial and district levels;
- Coordination at all levels with involvement of partners is critical for maintaining and improving TB/HIV activities;
- Bottom up planning involving all partners helps to identify gaps and priority areas for both national programs and international/ local partners;
- International and local partners (NGOs, CBOs, PLHIV groups, UN Agencies and Donors) also play a critical role in providing technical assistance and filling financial gaps;
- A Continuum of Care approach for TB/HIV activities ensured quality and completeness of care from facility- to community-level and empowered PLHIV and TB patients.

## Kenya

### *by Amos Kutwa, KNCV Tuberculosis Foundation*

**Country background.** Kenya is an East African country with a population of 39 million people,<sup>9</sup> a population growth rate of 2.7 percent per annum, and an area of 582,650 square kilometers. Kenya has eight administrative provinces which are divided into 254 districts. The health sector is served by the Ministry of Medical Services and the Ministry of Public Health and Sanitation.

**HIV/AIDS situation.** The sentinel surveillance shows the epidemic increasing from 5.1 percent in 1990, peaking in 2000, and then declining to 6.9 percent in 2006. In 2007 an estimated 1.4 million Kenyans were living with HIV. HIV prevalence was 7.4 percent<sup>10</sup> among the 15–64 years age group. The prevalence is higher among women (8.7%) than men (5.6%). The 901 registered VCT sites tested 850,097 people for HIV in 2007, of whom 95,428 (11.2%) tested positive. In 2009 it was reported that 498,682 PLHIV were on ART.<sup>11</sup>

**TB situation.** In 2008, 110,251 cases of all types of TB were reported, a 5 percent decrease from 2007, and 38,811 (32%) were new sputum smear-positive pulmonary tuberculosis (PTB) cases. The case notification rate of all forms of TB was 288 per 100,000 population.<sup>12</sup> The case detection rate among new smear-positive pulmonary tuberculosis cases is 72 percent, and in all forms is 80 percent.<sup>13</sup> An exponential increase was reported in TB cases<sup>14</sup> from the 1990s to a peak in 2008 that was attributable to TB/HIV co-infection. The TB treatment success rates in 2007 were 85.2 percent for new smear-positive PTB cases (n=38,360), 79 percent for smear-positive retreatment cases (n=3,945), 82 percent for new smear-negative PTB cases (n=42,852), and 80 percent for extra-pulmonary TB cases (n=18,032).

### **Implementation of collaborative TB/HIV activities.**

- **Current situation.** The Division of Leprosy, Tuberculosis and Lung Disease (DLTLD) and the National AIDS and STI Control Programme (NAS COP) have a close working relationship and have appointed focal persons for collaborative activities. All TB clinics provide HTC and CPT, and refer dually infected TB cases for ART. Likewise, the CCC screen PLHIV for TB. In 2008 the TB program tested 91,508 (83%) TB patients for HIV out of 110,251 TB cases reported. Of the tested TB cases, 41,179 (45%) were also HIV positive. HTC among TB patients has been increasing steadily from 20 percent in 2004 to a high of 83 percent in 2008.<sup>15</sup> 12,426 (31%) co-infected patients are on ART, and 37,757 (94%) of TB/HIV patients are receiving co-trimoxazole preventive therapy. Twenty percent of PLHIV were screened for TB in 2008.

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<sup>9</sup> Kenya People 2009. [http://www.theodora.com/wfbccurrent/kenya/kenya\\_people.html](http://www.theodora.com/wfbccurrent/kenya/kenya_people.html) Source: 2009 CIA World Factbook.

<sup>10</sup> Kenya Aids Indicator Survey, 2007.

<sup>11</sup> NAS COP unpublished data for 2009.

<sup>12</sup> Annual report 2008, DLTLD, Ministry of Public Health and Sanitation.

<sup>13</sup> Global TB Control: World Health Report, 2009.

<sup>14</sup> Global TB Report, WHO 2009.

<sup>15</sup> Annual Report 2008, DLTLD.

## Achievements

- **Policy/strategy and guidelines.** The DLTLD adapted WHO's TB/HIV working group policy framework to develop guidelines on diagnostic testing and counseling in clinical settings as well as a training curriculum on collaborative TB/HIV activities, including DTC, ART, and CPT. All HCWs in DLTLD clinics provide HTC in all TB clinics in the country. The result is that 83 percent of TB patients reported in 2008 were tested for HIV and 45 percent were HIV positive. Ninety three percent of the co-infected patients received CPT and 31 percent were put on ART.
- **Coordinating mechanisms.** The TB/HIV technical committee convened by the director of medical services in 2002 includes WHO, CDC, USAID, KNCV, African Medical and Research Foundation, FHI, MSH, DLTLD (Secretariat), NASCOP, PATH, and several civil society organizations. This partnership has been crucial in mobilizing resources for the implementation of TB/HIV collaboration. Screening partners/contacts has increased such that 5,296 HIV-positive TB patients' partners were tested for HIV. For nutritional support, in 2008, 1,483 HIV/TB patients were given nutritional support through the DLTLD.
- **Leadership and Partnership.** The provincial director of public health and sanitation (PDPH&S) in Central Province oversees the process of integrating TB/HIV services and chairs the TB/HIV committee, which includes the provincial TB coordinator (secretary), Provincial AIDS coordinator, provincial nursing officer, provincial public health officer, NGOs, and TB/HIV co-infected individuals. All districts must form similar stakeholder committees, hold regular quarterly meetings, invite all stakeholders, and make joint annual plans. Consequently, all TB clinics in Central Province provide HTC. The TB and HIV/AIDS programs share resources and conduct joint supervision in the districts.

The medical superintendent of Karatina Hospital in Central Province, with guidance from the provincial director of Public Health & Sanitation, oversees the process of integrating TB/HIV care services through weekly and monthly meetings at which resources required for integrated TB/HIV care services are allocated among TB and HIV programs.

Karatina and Kericho hospitals have strong partnerships with PEPFAR (President's Emergency Plan for AIDS Relief) and USAID. These partnerships have resulted in provision of human, financial, and material resources for TB/HIV integration. Partner meetings are held with staff every quarter to discuss progress made, isolate challenges, and brainstorm local solutions to various constraints.

- **Integrated TB/HIV services.** The DLTLD of the Ministry of Health provides TB and HIV care services that are either partially or fully integrated in almost all health centers and hospitals nationwide. The partially integrated model was observed in Nakuru and Nyeri provincial general hospitals. In the fully integrated TB/HIV Model, integrated TB/HIV care services are in the same building or clinic and provided by either the same team of care providers or one care provider in a health facility. This model was observed in Kericho, Karatina district hospitals and the private Unilever Hospital, and Sagana and Sosiot health centers.
- **Program monitoring & evaluation.** Achievements were made in the following areas:
  - **Revised WHO TB/HIV indicators:** The TB-specific surveillance system incorporates the revised WHO TB/HIV indicators and captures all required TB information, including

TB/HIV. NASCOP uses HMIS. Both systems capture the most important information for collaborative activities.

- **TB/HIV data linkages:** The two programs can access reports (regular annual reports from DLTLD and occasional “AIDS in Kenya” reports) from each other when needed but do not routinely share reports.
- **Feedback system:** DLTLD holds regular quarterly review meetings in all provinces and bi-annual meetings at the national level. NASCOP does not hold review meetings. DLTLD routinely produces and circulates annual reports. The MOH just started to produce annual reports on all programs.
- **Data quality:** DLTLD data is of good quality and includes TB/HIV data, case findings, and treatment results of patients. The data can be segregated according to sex, age, type of TB, district, and province.
- **Supervision:** Both programs provide supportive supervision to the periphery. The DLTLD central unit makes district supervisory visits at least once a year; the PTLC and DTLC make quarterly visits.
- **Quality of care:** The CCC is staffed by many cadres working under a medical officer who also has oversight of the TB clinics as the chair of the MDT meetings. The medical specialist is consulted as needed.

### **Challenges**

- There are no standard operating procedures or guidelines for implementation of integrated TB/HIV services for the health care worker at the facility.
- DLTLD and NASCOP do not jointly plan TB/HIV activities. Since the assessment, however, each program has appointed TB/HIV focal points.
- Lack of policy on TB IPT for PLHIV. The TB guidelines advise that isoniazid chemotherapy be given to children under six years.
- TB/HIV collaborative coordination meetings are not held routinely in all provinces and districts.
- Health facilities lack adequate human resources and space for counseling and testing patients, and there is a lack of engagement between the two programs.

### **Best Practices for TB /HIV integration**

- **Coordination**
  - The National TB/HIV technical working group has clear terms of reference and holds regular meetings with representation from TB and HIV programs and partners in both programs.
  - The Central Province stakeholders’ forum convenes quarterly; it is chaired by the provincial director of public health and sanitation and attended by all stakeholders in TB and HIV.

- Positive results are achieved by developing and implementing joint annual plans in Central Province, sharing scarce resources, and including these plans in their overall respective annual operation plans.
- The DLTLTD develops TB/HIV guidelines, DTC guidelines, and training curricula, and builds program capacity for TB/HIV collaboration at all levels.
- The DLTLTD revised surveillance tools to capture TB/HIV information, including TB/HIV indicators in all M&E tools.
- HMIS introduced a data form to summarize HIV care, including TB indicators for NASCOP.
- **Delivery of services**
  - The DLTLTD trains all TB coordinators on TB/HIV and provides HTC in all diagnostic centers.
  - Karatina and Kericho District Hospitals have enthusiastic teams, having established full one stop shop TB/HIV clinics. The hospitals test almost all TB patients and, for those who test positive, almost 100 percent receive CPT, and 50 percent are on ART.
  - Sagana and Sosit health centers have established one shop TB/HIV clinics.

#### **Lessons learned**

- It is important to have a clear policy framework and sufficient resources to develop implementation guidelines and SOPs to achieve TB/HIV integration at the facility level.
- Structures, training, and support for advocacy to create awareness among MOH leaders and authorities on TB/HIV integration are needed.
- Bottom-up joint planning is important to identify issues and areas from the health facility to the national level that require support. The Management Sciences for Health MOST for TB/HIV<sup>16</sup> tool supported planning for TB/HIV integration.
- Partners play an important role in mobilizing resources and act as catalysts for TB/HIV integration.
- Development of TB/HIV indicators requires that both programs consult with one another.
- Integrated programs require adequate human resources at the national/provincial and district levels and benefit from a spirit of teamwork.
- Decentralizing ART is of critical importance to integration of TB/HIV services.
- Programs should encourage local groups to develop local solutions and incorporate successful local initiatives with sufficient funding.
- Forums should be provided to share best practices on a regular basis.

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<sup>16</sup> Management Sciences for Health. *Management and Organizational Sustainability Tool for National TB Control Programs (MOST for TB)*. 2009.

## Malawi

*by Eliud Wandwalo, Management Sciences for Health*

**Country background.** Malawi is in southeastern Africa bordering Zambia to the northwest, Tanzania to the northeast, and Mozambique to the south, southeast, and southwest. The country had an estimated population of 14 million in 2008, with the majority of people (86%) living in rural areas. Agriculture is the backbone of the economy and constitutes about 90 percent of export revenue. About half of the population lives below the poverty line, and the per capita GDP in 2008 was estimated at US\$299

**Health system.** In 2004 the government adopted a Sector-Wide Approach (SWAp) as a mechanism to deliver the Essential Health Package (EHP) through a decentralized, district-based approach. The EHP aimed at improving technical quality and efficiency in the delivery of health care, ensuring universal coverage of health services, and providing cost-effective interventions to address the country's disease burden. Despite this success, the health sector is facing a number of challenges, the major one being high HIV and TB prevalence.

**HIV/AIDS situation.** Malawi is among the countries that are heavily affected by the HIV/AIDS epidemic. The first case of AIDS in Malawi was reported in 1985. HIV rates increased rapidly in the 1990s. In a sample of pregnant women attending antenatal clinics in urban Blantyre, HIV prevalence rose from 2.6 percent in 1986 to more than 30 percent in 1998, decreasing only slightly to 28.5 percent in 2001. The rate stabilized around 2003, and in 2007 it was estimated that about 14 percent of the population was infected with HIV, a decline from the high rates of the 1990s. Life expectancy at birth in Malawi declined to 40 years from an estimated 48 years in the early 1990s, largely due to the HIV/AIDS epidemic.

HIV infection in Malawi is predominantly transmitted through heterosexual intercourse. There are gender disparities in regard to HIV infection rates, with women being disproportionately affected (nationwide, 13.3% of women are infected compared to 10.2% of men). HIV prevalence in Malawi increases with age among both men and women, peaking in the age group of 30–34 years. In all age groups before 30 years and after 40 years, women are more likely to be infected than men. Disparity between urban and rural rates is also prominent, with 17.1 percent of urban residents infected compared to 10.8 percent of their rural counterparts. The prevalence of HIV infection varies across geographical regions, ranging from 17.6 percent in the worst affected regions in the northern part of the country to 6.5 percent in the least affected region.

Current estimates of the burden of HIV, based on projections from antenatal and population-based estimates, indicate that about 100,000 new HIV infections occur every year in Malawi. About 930,000 people in Malawi are living with HIV. Of these, approximately 440,000 are women and 91,000 are children (age 15 years and younger). The National HIV Surveillance projections estimated that in 2005 there were around 86,592 AIDS-related deaths in Malawi.

The HIV/AIDS problem in Malawi has overstretched the health system and compounded the critical shortage of required human resources for health. The Ministry of Health estimates that there is a shortage of nearly all cadres of health care staff in the country.

**TB situation.** In addition, HIV/AIDS is fueling a TB epidemic in Malawi. TB notification has increased more than five-fold, rising from 5,300 cases in 1986 to 27,610 cases in 2005, largely due to HIV/AIDS.

An HIV survey of TB patients in 2000 showed that about 77 percent of patients were also HIV positive. Routine data in the past four years have consistently shown average HIV sero-prevalence among TB patients of about 70 percent.

HIV/AIDS has also affected TB control efforts by increasing the rate of unfavorable treatment outcomes. Between 1987 and 2001, the TB cure rate among new smear-positive cases declined from 90 percent to 67 percent, mostly as a result of high case-fatality (maximum 22% in 1998) due to the high HIV prevalence among TB patients, making it difficult to achieve the global target of an 85 percent cure rate.

#### **Implementation of collaborative TB/HIV activities**

- **Current situation.** Malawi is among the few countries that had pilot programs and started early implementation of collaborative TB/HIV interventions after realizing the close association between these two diseases and the devastating impact of the dual epidemic. TB/HIV activities started as a pilot project in 1999 through the ProTEST project coordinated by WHO. When the project ended in 2002, the Ministry developed a three-year plan for joint implementation of TB and HIV services.
- **Achievements.** Since then the country has made tremendous progress in implementation of integrated TB/HIV activities. By 2007 about 86 percent of all TB patients were being tested for HIV and about 90 percent of TB/HIV patients received CPT, while about 28 percent were on ART. In addition, more PLHIV were receiving ART, and the services had been decentralized to involve more health facilities. By March 2009 a total of 158,137 people were on ART in more than 233 treatment centers in the country.

#### **Best practices in integration of TB and HIV/AIDS services**

- Three models of TB/HIV implementation were observed in Malawi: (1) the integrated model where TB and HIV/AIDS services are provided under the same roof by the same staff as a one stop shop, (2) the partially integrated model where TB and HIV/AIDS clinics are synchronized for TB/HIV patients, and (3) stand-alone TB and HIV/AIDS services that are linked by a referral system. While the last of these models is the most common in Malawi, the integrated model has recorded the best outcomes. In the third quarter 2008 about 63 percent of TB/HIV patients were on ARV in Zomba Central Hospital—where the integrated model is implemented—compared to 25 percent in Nchinji District Hospital where TB and HIV/AIDS services are separate.
- Malawi has used the TB DOTS experience to develop and rapidly scale-up an ART program. The principles of the DOTS strategy, successfully implemented in Malawi over the years, were used to develop the ART program. Of key importance in the approach is the provision of treatment to a larger population while keeping the principles and practice of ARV delivery as simple as possible. By March 2009 ART was being provided in 233 sites in the country, and a total of 158,137 people were on ART. The rapid scale-up of ART sites in the country provides further opportunity for integration of TB/HIV services at lower levels.
- TB officers in Zomba and Mangochi districts have found innovative way of overcoming the problem of TB/HIV underreporting. The problem of underreporting for TB/HIV data is a challenge facing many tuberculosis programs because the current cohort quarterly reporting system “misses” some TB patients who have not accessed HIV/AIDS services, such as ARV, in that reporting period. The TB officers have devised a system of “skipping” one quarter during the reporting of TB/HIV data, thereby allowing patients to access HIV services.

- TB and HIV/AIDS activities have been integrated in the community. These interventions include provision of TB treatment and ARVs; TB contact tracing and investigation; community sputum smear collection and transport to a health facility; community education and sensitization on TB/HIV; promotion of HIV testing; and integration of TB/HIV activities with other community-based initiatives such as orphans' care and education programs, vocational skill training, and income-generating activities.
- Malawi has a TB/HIV register which is simple and easy to use. The register has been designed to allow monitoring of patients and progress in reaching TB/HIV targets. The design also enables analysis of the relative contribution of TB and HIV/AIDS programs to TB/HIV indicators. For example, by using the register it is possible to know how many TB patients were tested for HIV or on ARV before, during, and after TB treatment.
- Malawi has an active TB/HIV subgroup at the national level which coordinates and provides oversight in implementation of TB/HIV activities. The subgroup has strengthened partnership and leveraged resources and, therefore, enhanced rapid scale-up of TB/HIV activities in the country.

## Rwanda

*by Claire Moodie, Management Sciences for Health*

**Country background.** Rwanda is a central African country with a population of roughly 9.3 million. Although 90 percent live in a rural setting, 78 percent have access to a health center within five kilometers of their homes. In 2008 the average life expectancy was 58 years; the infant mortality rate was 77 per 1,000 live births.<sup>17</sup>

**HIV/AIDS situation.** Although Rwanda is not impacted on the same scale as many African countries, HIV/AIDS still proves to be a challenge. There are currently 190,000 people living with HIV/AIDS in Rwanda; the adult prevalence of HIV is 2.8 percent (2008). In 2008 VCT was available at 60 percent of health centers (n=329), prevention of mother-to-child transmission (PMTCT) at 56 percent (n=309), and free ARVs were accessible at 38 percent of health facilities (n=209).

**TB situation.** In 2008 there were 7,841 new TB cases identified, with an overall prevalence of roughly 100 per 100,000.<sup>18</sup> In 2008 WHO estimated that the incidence of TB in Rwanda was 390 per 100,000. The treatment success rate in 2006 was 86 percent.<sup>19</sup>

1. **Implementation of collaborative TB/HIV activities.** In general, Rwanda has made substantial and remarkable progress integrating TB/HIV services in a relatively short period of time. In February 2005 the Ministry of Health, national TB and HIV programs (HAS), the Global Fund, the International Center for AIDS Care and Treatment Programs (ICAP), and other key stakeholders established a TB/HIV working group. A policy document (with time-sensitive objectives and targets) on TB/HIV integration was developed based on the WHO interim guidelines. In that same year, ICAP worked with the National Malaria Control Programme and the Rwanda National TB Control Program to establish two model centers for TB/HIV integrated services. These sites, aiming to test and document innovative and effective strategies in TB/HIV integration, implemented the one-stop shop approach, which was then adopted as the national strategy in 2007.

**Current situation.** By the end of 2008, VCT was available in 85 percent of TB clinics and ARVs were being distributed in 78 percent of them. Nationwide in 2008, 96 percent of TB patients were tested for HIV, of which 34 percent were HIV positive. Co-trimoxazole preventative treatment was administered to 87 percent of co-infected patients, and about 40 percent also received ARVs, which at that time were given to patients with CD4 counts <350. Figure 1 indicates the rapid improvement for each of these indicators.

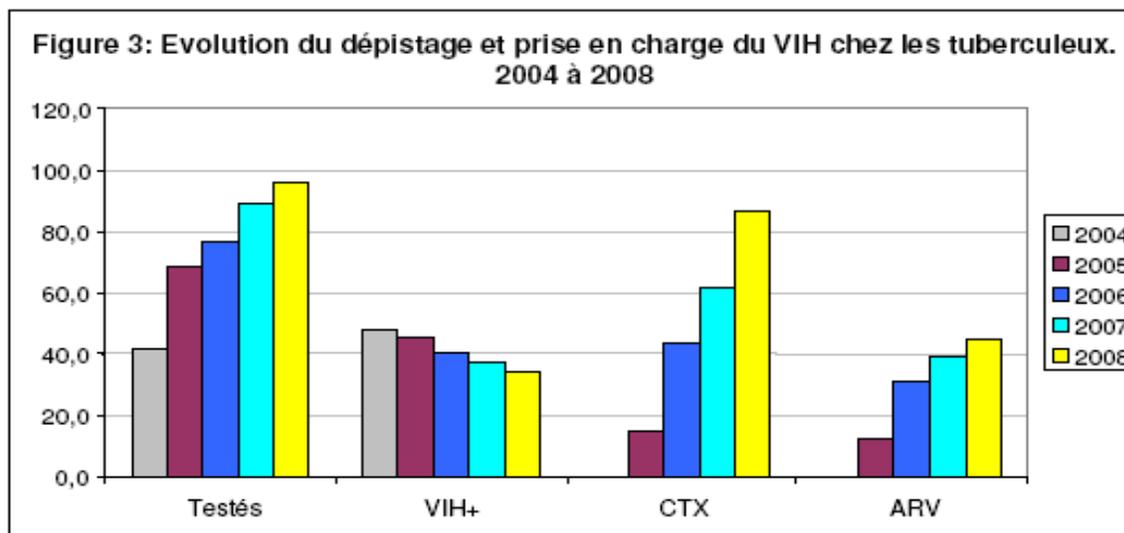
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<sup>17</sup> World Health Statistics 2010: World Health Organization. 2010.

<sup>18</sup> Rapport d'activités de l'année 2008: Programme National Intégré de lutte contre la Lèpre et la Tuberculose (PNILT). February 2009.

<sup>19</sup> Global Tuberculosis Database, 2006: World Health Organization, June 2010.

**Figure 1: The Evolution of testing and care of HIV among TB patients in Rwanda (2004–2008)**



*Source:* Global Fund. “Rwanda case study on the TB Program.” 2007. (shared by PNILT, June 16, 2009).

**Achievements.** The one-stop shop treatment and care approach has been successful at providing TB & HIV patients the following services, as follows.

- HIV testing to TB patients in the TB treatment unit (provider-initiated testing);
- Treating and caring for co-infected patients in the TB clinic. DOTS, co-trimoxazole, ART (as needed), and CD4 count testing are all done in one location (the TB clinic);
- HIV-infected patients are then accompanied and transferred to the HIV clinic at the end of TB treatment for continued treatment and care;
- Systematic TB screening for all HIV patients at clinic appointments using five questions;
- Contact tracing for TB patients via home-based visits and HIV testing or TB screening for family members.

**Challenges.** Decentralization in Rwanda has successfully shifted significant public health and supervisory responsibilities from the national to the district level. Implicated personnel at the district level gain tasks and responsibilities without always having additional staff to support these additional activities. Although no additional staff are needed for TB/HIV integration to occur, these staff can sometimes be spread thin when balancing their original tasks with new decentralization duties.

#### **Best practices in integration of TB and HIV activities**

Rwanda has demonstrated that rapid scale-up of TB/HIV service integration is possible. Political and financial support have played a key role in this, but other important factors in this country’s successful start to TB/HIV integration are strong collaboration across partners, structured and organized

management of the process, and dedication at every level. Below are Rwanda's best TB/HIV integration practices:

- Political will and support were extremely important to successfully integrating TB and HIV programs. The Government of Rwanda recognized the TB/HIV relationship as a public health priority and has acted quickly to address this problem. Although considerable external funds have been committed to this cause, Rwanda has “committed to abide to the declaration by African Heads of State to increase the health sector spending to 15 percent of public expenditure and has indeed increased its budget from 5.2 percent to 12 percent from year 2002 to 2008.”<sup>20</sup>
- Key documents were developed and implemented on TB/HIV integration, including a policy statement on TB/HIV collaborative activities and a manual on the implementation of TB/HIV integrated services. In addition, other critical documents, such as the National TB Manual, the National HIV/AIDS manual, MDR-TB treatment and care procedures, and infection control guidelines have sections devoted to TB/HIV integration. These documents are readily available at both the national and district level and are updated every two years.
- The development and piloting of two model centers for one-stop service provided evidence and support for scaling up nationally. This approach was not created overnight, but was tested, evaluated and modified to best meet the objectives of TB/HIV integration in Rwanda.
- The one-stop service approach puts the patient first, servicing TB and co-infected patients and protecting both TB and HIV patients from further infection. This model truly integrates all TB & HIV care and services for dually-infected patients.

#### **Lessons learned from Rwanda**

- There are specific budgets within both the National Malaria Control Programme and HAS programs for TB/HIV activities. This reinforces buy-in and commitment from both programs, avoiding the need for one program to completely support all TB/HIV activities. Although there are separate budgets, the programs still try to share resources where possible.
- In 2005, a working group on TB/HIV integration was developed and has been meeting regularly since that time. It is composed of National Malaria Control Programme and HAS personnel, ICAP, WHO, and other stakeholders who are key players in TB/HIV service integration. This group provides guidance and input to the National Malaria Control Programme and HAS on improving integration activities and conducts annual planning to coordinate activities across all donors and partners.
- The country's decentralized health system has facilitated faster and stronger integration. The training process, lines of communication, and monitoring and evaluation have been streamlined and simplified in the absence of having to coordinate through a regional or provincial level.
- Quarterly meetings for each district have improved performance at the district and national level. In addition, performance-based financing is standard practice in all health centers for TB and HIV staff and adds to this steady program improvement.

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<sup>20</sup> Global Fund. “Rwanda case study on the TB Program.” 2007; (shared by PNILT June 16, 2009).

- TB screening of HIV-positive patients is common practice at each HIV clinic visit. A poster with five key screening questions is frequently displayed in HIV clinics for easy reference; an operational protocol poster on the TB screening and testing process for HIV-positive patients complements the screening poster.
- Educational materials such as flipcharts and posters are widely available throughout the country in all forms of health facilities. Health education is an established component of meeting with a new TB and/or HIV patient. Health care workers speak with TB patients about cough etiquette and HIV testing and prevention; they also talk to HIV-positive patients about TB. Patient education flipcharts are often used as a resource during these discussions.
- The one-stop TB/HIV clinic is an effective strategy for keeping co-infected patients out of HIV clinics and away from at-risk HIV-positive patients. Although TB clinics are often small, attempts are made to have an open-aired waiting area away from other patients (including those who are HIV positive).



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