Elizabeth Glaser Pediatric AIDS Foundation

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Haba Na Haba
Technical Bulletin

Spotlight On…
Integration of TB and HIV Prevention, Care, and Treatment

Photo credit: James Pursey

TB is the second-leading cause of death from an infectious disease worldwide (after HIV), claiming the lives of close to 1.5 million people each year, approximately 350,000 (23%) of whom are living with HIV.[1] The road to bringing this ancient microbial disease under control has been long and difficult, especially in the 22 high-TB-burden countries (which include China, India, and nine African countries) that have been prioritized by global TB efforts since 2000 and account for 81% of TB cases globally.[1] But now, more than a decade after the World Health Organization (WHO) declared TB a global public-health emergency in 1993, the scales have begun to tip. Between 1990 and 2010, global TB prevalence rates fell by 50% and mortality rates fell by almost 80%.[1]

continued

Welcome!

Welcome to the Elizabeth Glaser Pediatric AIDS Foundation's technical bulletin, *Haba Na Haba!*

This publication provides a dynamic forum for the routine sharing of technical information and promising practices across the Foundation, as well as with our extended family of partners and other like-minded organizations around the world. Each issue of *Haba Na Haba* highlights a topic of particular importance to the Foundation. The highlighted topic for this issue is **Integration of TB and HIV Prevention, Care, and Treatment**. We hope you enjoy the information presented, and we invite you to stay tuned for the next issue, which will bring you the latest exciting news from across the hall and across the ocean!

What Does *Haba Na Haba* Mean?

The name of the bulletin, *Haba Na Haba* ("little by little"), is borrowed from the Swahili proverb ***haba na haba, hujaza kibaba*** ("little by little fills the pot") and was chosen to reflect the often incremental nature of progress in our field. As the experiences described on the following pages demonstrate, the smaller efforts of every one of us are the essential "ingredients" for mounting a strong and united global response to HIV and AIDS.

Feedback is welcome from all readers, and contributions are accepted from all Foundation staff. Please send your questions, comments, or content submissions to techbulletin@pedaids.org.

Spotlight On… *(continued)*

The Dual Epidemics of TB and HIV

There were 2.7 million new HIV infections globally in 2010 (down from 3.1 million in 1999), including an estimated 390,000 infections among children. Despite reductions in new infections, the total number of people living with HIV continues to rise, from 22.6 million in 1999 to 34 million at the end of 2010. Access to antiretroviral therapy (ART) has been rapidly scaled up in recent years. In low- and middle-income countries, 47% of treatment-eligible people were receiving ART at the end of 2010, with a 20% jump in coverage in sub-Saharan Africa between 2009 and 2010 alone. Despite this impressive progress, 7.5 million people eligible for treatment in low- and middle-income countries were still without access to ART at the end of 2010. Sub-Saharan Africa remains the single most affected region overall, with 70% of all new infections and 68% of all people living with HIV.[2] These figures represent a particular challenge in the context of TB, as limited access to TB care, treatment, and prevention services in many HIV-high-prevalence countries has led to one in four AIDS-related deaths being attributable to TB.[3]

People living with HIV who are also infected with TB are 21 to 34 times more likely to develop active TB disease during their lifetime than people infected with TB who are HIV-negative.[1] As a result, countries with the highest HIV burden experienced a dramatic increase in the number of reported active TB cases during the previous two decades, from fewer than 200 cases per 100,000 population in the early 1990s to more than 350 cases per 100,000 population in 2004. This trend has continued to be been particularly pronounced in the African region (despite decreases in global TB incidence), which in 2010 accounted for 82% of all new cases of TB among people living with HIV and 23% of TB-related mortality worldwide (see Figure 1). An estimated 900,000 people living with HIV in African countries developed TB in 2010, representing 39% of all new TB cases reported in the region.[1] Yet despite these grave statistics, signs of success stemming from the region's growing response to these dual epidemics are beginning to show. HIV testing of people with TB is now standard practice in many African countries (with 59% of people with TB in the African region receiving HIV testing in 2010), and TB-related mortality in people living with HIV has been on the decline since its estimated peak in 2004.[1]

Impact of TB and HIV on Women and Children

While not often recognized as a women's health issue, TB was the third-leading cause of death—and the leading cause of death from an infectious disease—among women aged 15–44 in low-income countries in 2008.[5] The HIV epidemic has resulted in a significant lowering of the peak age prevalence of TB, with the highest incidence of infectious TB cases now occurring in adults of reproductive age (20–45 years).[6,7] TB in women of reproductive age impacts not only their own health, but also the health

of their unborn and young children. A recent study in India found that women coinfected with TB and HIV had more than a threefold increased risk of transmitting HIV to their unborn children than women who were HIV-negative.[8] The healthy survival of young children is therefore being severely impacted by TB, even if they themselves do not contract the disease. In 2009, nearly 10 million children were orphaned as a result of deaths caused by TB, with an estimated 3.1 million of these children losing at least one parent to HIV-associated TB.[1]

Gaining an accurate picture of the burden of TB among children in resource-limited settings is difficult due to poor case notification and inadequate record keeping, but the WHO currently estimates that children comprise 11% of all annual TB cases worldwide.[9,10] What is known is that for children living with HIV, the consequences of TB exposure and subsequent infection can be dire. Studies have found that HIV-positive children who are exposed to TB have up to 20 times greater risk of developing active TB disease than their HIV-negative counterparts, with the strongest risk determinants being a child's age and immune status.[11,12] The most common source of infection in children is a parent or other adult household member, and while the disease can develop at any age, exposed children under three years are at the highest risk.[10]

Diagnosis of TB in children is challenging due to difficulties with specimen collection and bacteriological confirmation.[13] These challenges are further compounded for children living with HIV, where overlapping symptoms (e.g., weight loss and failure to thrive), poor diagnostic sensitivity, atypical presentation of TB, and other factors make TB extremely difficult to diagnose in this highly vulnerable population.[6] Children with HIV are also at increased risk for developing the severest forms of TB disease, including TB meningitis.[14] If timely TB treatment is received, however, children generally respond well regardless of their immune status, and treatment recommendations for children coinfected with HIV do not differ significantly from those for HIV-negative children.[15]

Multidrug- and Extensively Drug-Resistant TB

One issue of particular concern in the context of TB/HIV coinfection is multidrug-resistant (MDR) and extensively drug-resistant (XDR) TB. MDR-TB is resistant to both first-line TB drugs (isoniazid and rifampicin), while XDR-TB is additionally resistant to a fluoroquinolone and at least one second-line injectable drug. Cases of MDR- and XDR-TB are harder to diagnose and treat, requiring more sophisticated laboratory equipment and the use of costly drugs (50 to 200 times more expensive than conventional treatment) for extended treatment periods of two years

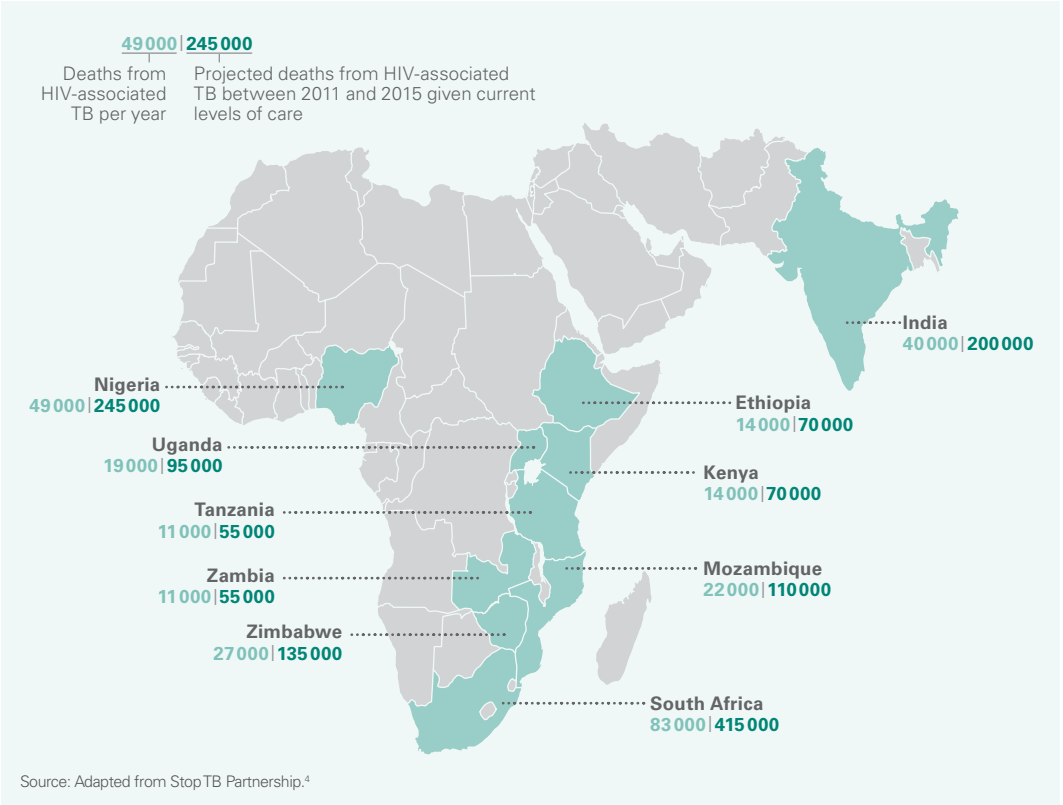


Figure 1. Countries with the highest number of deaths from HIV-associated TB

Box 1. WHO Collaborative TB/HIV Activities (2004)[17]

A. Establish and strengthen the mechanisms for integrated TB and HIV services delivery
   - A1. Set up and strengthen a coordinating body for TB/HIV activities effective at all levels
   - A2. Conduct surveillance of HIV and TB prevalence among TB patients and people living with HIV respectively
   - A3. Carry out joint TB/HIV planning for integrated TB and HIV service delivery
   - A4. Conduct monitoring and evaluation of collaborative TB/HIV activities

B. Decrease the burden of TB in people living with HIV (the Three I's for HIV/TB and earlier initiation of ART in line with WHO and national guidelines)
   - B1. Intensified TB case finding and ensuring quality TB treatment
   - B2. Initiation of TB prevention with isoniazid preventive therapy and earlier initiation of antiretroviral therapy in line with WHO and national guidelines
   - B3. Infection control for TB in health care and congregate settings

C. Decrease the burden of HIV in patients with presumptive and diagnosed TB
   - C1. Provide HIV testing and counseling to patients with presumptive and diagnosed TB
   - C2. Introduce HIV prevention interventions for patients with presumptive and diagnosed TB
   - C3. Provide cotrimoxazole preventive therapy for TB patients living with HIV
   - C4. Ensure HIV treatment and care for TB patients living with HIV
   - C5. Provide ART for TB patients living with HIV

or more, versus six months for drug-susceptible TB.[16] According to a 2009 WHO report on drug-resistant TB, MDR-TB is almost twice as common in people living with HIV compared to people with TB who are HIV-negative. It is also highly lethal, with studies showing mortality rates of over 90% in people living with HIV who have MDR- or XDR-TB.[18]

The true scale and impact of drug-resistant TB, however, remains unknown. An estimated 3.6% of all incident TB cases globally are MDR-TB, but this may only be the tip of the iceberg. Only 12 African countries have conducted a nationwide survey of TB drug resistance since 2000, and only 11 countries globally—none of which are in Africa—currently report TB drug surveillance data stratified by HIV status.[19] MDR-TB in children is an additional area of growing concern, but evidence regarding the magnitude of the problem is scarce. Localized studies in South Africa found that nearly 9% of TB cases in children were drug resistant, but further research is needed to assess the true disease burden among children.[20] It is hoped that the roll-out of new diagnostic tools that can rapidly detect MDR-TB, such as the GeneXpert test, will lead to increased case detection and reporting of MDR-TB in adults and children in the most affected regions.[1]

Global Strategies to Address TB/HIV Coinfection

The WHO first defined a set of 12 interventions needed to prevent, diagnose, and treat TB in people living with HIV in 2004, known collectively as "collaborative TB/HIV activities" (see Box 1).[21] In 2008, the WHO highlighted three of these interventions—intensified TB case finding (ICF), isoniazid preventive therapy (IPT), and infection control (IC) for TB—as the "Three I's."[22] Implementation of the Three I's along with earlier initiation of antiretroviral therapy (ART) for people coinfected with TB and HIV serve as the cornerstone of many countries' recent efforts to integrate previously separate national TB and HIV programs.

In 2006, the WHO's Stop TB Partnership released the Global Plan to Stop TB (2006–2015),[23] which was later revised and rereleased in 2010 as the Global Plan to Stop TB (2011–2015).[16] The stated goal of the 2011–2015 plan in relation to TB/HIV is to "reduce by 50% the number of TB-related deaths among people living with HIV compared with 2004 levels." To achieve this goal, the plan outlines eight TB/HIV objectives and related targets linked to Millenium Development Goal 6c (halt and begin to reverse the incidence of TB by 2015). Specific targets cover implementation of the Three I's, as well as HIV testing among people with TB, provision of cotrimoxazole preventive therapy (CPT) to all those coinfected with TB and HIV, improved patient monitoring, and early initiation of all coinfected clients on ART. Early initiation of ART for coinfected adults and children, irrespective of CD4 count, was also recently highlighted as a key strategy in the *Treatment 2.0 Framework for Action,* released by WHO and UNAIDS in 2011,[24] reflecting updated recommendations for treatment of TB/HIV coinfection contained in the WHO 2010 ART guidelines (see Treatment section for more information).

Funding for TB activities in the context of HIV remains challenging. The WHO estimates the total cost of implementing all TB/HIV components of the Global Plan to Stop TB at US$2.8 billion between 2011 and 2015, representing just under 8% of the estimated US$37 billion total projected funding requirement for implementation of all of the plan's recommended activities (excluding research and development activities).[16] The majority of funding for TB programs in low- and middle-income countries comes from a combination of international donor funding—including The Global Fund to Fight AIDS, TB and Malaria and the U.S. President's Emergency Plan for AIDS Relief—and domestic investments. WHO estimates that between 2011 and 2015, approximately US$23 billion of the projected need will be mobilized from domestic sources, while the remaining gap of US$14 billion (US$2.8 billion per year) will need to come from international donors, representing a sixfold increase in 2010 levels of donor funding for TB. By comparison, total donor funding for HIV programs totaled US$8.5 billion in 2008 alone.[16]

TB Case Finding and Prevention for People Living with HIV

The WHO 2011 guidelines on ICF and IPT in people living with HIV recommend a simplified screening algorithm using four clinical symptoms (current cough, fever, weight loss, and night sweats). HIV-positive clients having at least one symptom are further evaluated for TB, while those without symptoms are provided with IPT (for a duration of at least 6 months, and up to 36 months in settings with a high transmission risk).[25] These guidelines were successfully implemented in South Africa and Cambodia in 2010, resulting in dramatic improvements in IPT uptake. In South Africa, there was a fivefold increase in the number of HIV-positive people provided with IPT over a one-year period.[26]

ICF and IPT are particularly important interventions for the prevention and early treatment of active TB in vulnerable groups such as pregnant women and children living with HIV. Antenatal (ANC) clinics offering prevention of mother-to-child HIV transmission (PMTCT) services therefore represent a unique opportunity for targeted delivery of these services. A recent study in Soweto, South Africa, found a high burden of active TB among HIV-positive pregnant women in ANC (688 per 100,000) compared to HIV-negative women (201 per 100,000) and concluded that TB screening and provision of IPT should be integrated with PMTCT services.[27] Similar calls have been made by others in recent years, pointing to the potentially significant impact provision of these relatively simple interventions within PMTCT services could have on both maternal and child health outcomes.[28]

Treatment of TB/HIV Coinfection

The fourth edition of the WHO TB treatment guidelines, released in 2010, contains a number of specific recommendations for treatment of TB in people living with HIV.[29] The main emphasis of these recommendations is on the importance of timely TB treatment, followed by cotrimoxazole and initiation of ART for all TB/HIV-coinfected people (adults and children, regardless of CD4 status), as well as provider-initiated HIV counseling and testing for all people with suspected or confirmed TB disease. ART is highly effective at preventing active TB in people living with HIV, having the potential to reduce TB incidence by up to 90% at the individual level and up to 60% at the population level.[16] Yet despite the effectiveness of ART in preventing TB (especially in people with CD4 counts below 350 cells/mm^3), a recent study in low-TB-burden countries found that people on ART still had a higher risk of developing active TB than the general population.[30] This underlines the importance of rigorous infection control measures to reduce TB exposure risk among people living with HIV, especially in clinical settings providing integrated TB and HIV care services.

The WHO 2010 guidelines on ART also stress the importance of early ART initiation, irrespective of CD4 count, for all TB/HIV coinfected adults and children with active TB within eight weeks after starting TB treatment. This represents a change from the 2006 guidelines, which recommended ART initiation only for coinfected adults with CD4 counts of less than 350 cells/mm^3, and for coinfected children with pulmonary TB (WHO clinical stage three) and severe immunodeficiency or extrapulmonary TB (stage four).[31,32] Both the TB and ART guidelines include detailed recommendations for timing of ART and TB treatment initiation, as well as considerations for drug selection in light of potentially harmful drug interactions and toxicities.

Conclusion

Due to the overlapping epidemiology of TB and HIV and the mutual benefits of a coordinated response to these two diseases, there is growing recognition in the international health community of the need to harmonize national TB and HIV efforts. National governments in many of the most affected countries have taken important steps in this regard, calling for increased collaboration and coordination between national TB and HIV programs.

Successful implementation of TB and HIV collaborative activities requires consideration of the realities that exist on the ground and the importance of tailoring interventions in a manner that enables their seamless introduction into existing programs, programs that are often overwhelmed with large numbers of clients and a paucity of human and other resources.[33] There is wide variation between countries in terms of models applied by national AIDS programs and national TB programs, resulting in gaps in implementation of the WHO-recommended Three I's. While some countries have taken steps to address the dual epidemics, others still lag behind in implementing a variety of evidence-informed interventions.

On the following pages, readers will learn about some of the ways in which the Foundation is supporting governments in scaling up approaches that address this double threat to public health, including implementation of integrated TB/HIV service delivery models for children, women, and families in both HIV and TB care settings. In light of these emerging national policies, the Foundation is also developing a framework that outlines a consistent management approach to collaborative TB/HIV activities across Foundation-supported programs, in recognition of the role these activities can play toward achieving the Foundation's goal of eliminating pediatric AIDS.

For more information on the Foundation's TB/HIV integration efforts and the new TB/HIV framework, contact Serge Agbo (sagbo@pedaids.org), technical officer for TB/HIV integration.

» *continued on pg. 10*

Reflecting on One Year of Progress in TB/HIV Integration in Selected Foundation-Supported Countries

Serge Agbo (sagbo@pedaids.org)

Background

The Foundation's TB/HIV program began collecting and reporting on TB/HIV indicators in four out of five of its U.S. Centers for Disease Control and Prevention (CDC)–funded Project HEART* countries in 2009. During a September 2011 internal data review, progress on these indicators was analyzed for the period from the second quarter of 2010 to the second quarter of 2011. Three of the reviewed countries (Mozambique, South Africa, and Tanzania) have taken a number of steps to integrate systems for TB care in HIV care and treatment facilities. In Côte d'Ivoire, TB diagnosis and treatment is still performed in stand-alone TB diagnosis and treatment centers.

Reporting on TB/HIV Indicators

The Foundation received quarterly reports on basic TB/HIV service integration indicators from clinic staff at supported HIV and TB care and treatment facilities in the four Project HEART countries during the period in question. Data collection in all countries relied on existing national data collection tools, in order to minimize the overall reporting burden for sites and avoid parallel systems. Unfortunately, these existing tools do not currently capture contextual information or client age and gender distributions. It is also important to note that the Project HEART sites included in this analysis represent only a subset of national care and treatment sites, and are therefore not necessarily representative of all sites in each country.

During the 12-month period beginning in April 2010, data on TB service delivery were reported by more than 80% of Foundation-supported HIV care and treatment facilities in South Africa and Tanzania (Figure 2). In Côte d'Ivoire, where Foundation staff must physically collect TB data from each site, data were obtained from fewer than 30% of supported HIV care and treatment sites. These challenges were compounded by the country's political crisis in late 2010. Declines in the percentage of sites reporting in Mozambique are attributed to the fact that pediatric HIV care and treatment sites ceased to report these indicators in the third quarter of 2010.

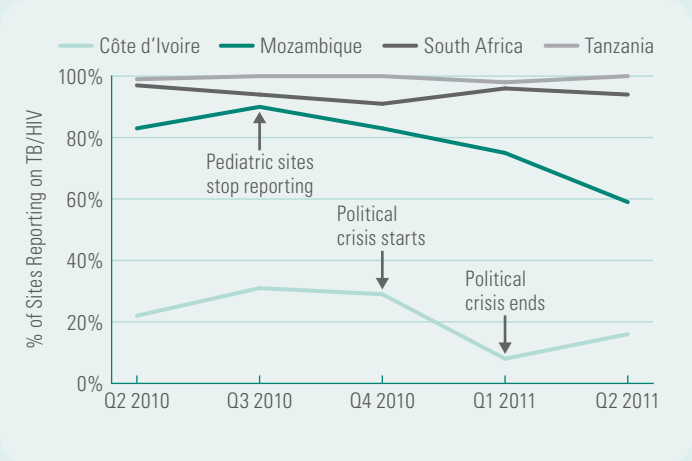


Figure 2. Percentage of Foundation-supported facilities reporting on TB/HIV integration activities

Screening for TB in HIV Care and Treatment Settings

The four countries included in this analysis were evaluated in terms of their implementation of the WHO-recommended approach to TB case finding in HIV care settings.[25] According to these recommendations, HIV-positive clients should be screened for TB at enrollment into HIV care and at every subsequent clinic visit. Foundation data show that reported TB screening coverage increased in both Tanzania and South Africa, while decreases were observed in Mozambique and Côte d'Ivoire (see Figure 3). TB screening in Tanzanian facilities was markedly higher than in the other three countries.

HIV Testing in TB Care Settings

According to the WHO, the proportion of TB clients with known HIV status reached 59% in the African region in 2010.[1] Foundation-supported facilities in the four countries monitored collectively performed well above this average, with facilities in Mozambique and Côte d'Ivoire testing more than 90% of clients with TB for HIV (see Figure 4), compared to 2010 national reported averages of 88% and 73%, respectively.[34] The most dramatic increase was observed in South Africa, where HIV testing rose from 54% in the second quarter of 2010 to 75% in the second quarter of 2011. This may in part be a result of the aggressive national HIV testing campaign launched in 2010 by the South African government.

* The Foundation launched Project HEART (Help Expand Antiretroviral Treatment to Children and Families) in 2003 to expand HIV care and treatment services in five countries: Côte d'Ivoire, Mozambique, South Africa, Tanzania, and Zambia. The project officially ends in February 2012.

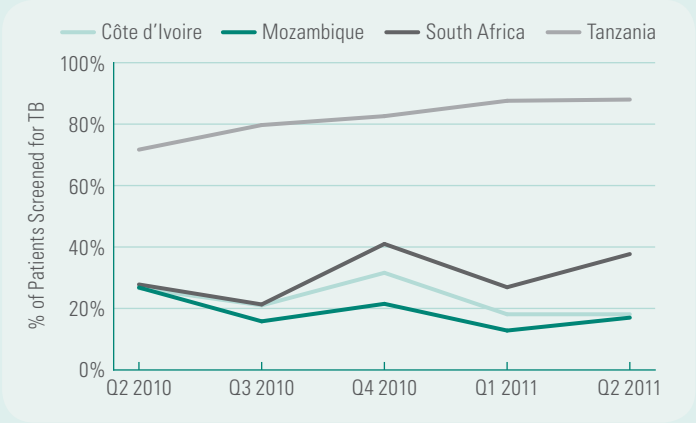


Figure 3. Percentage of HIV care clients screened for TB at Foundation-supported facilities

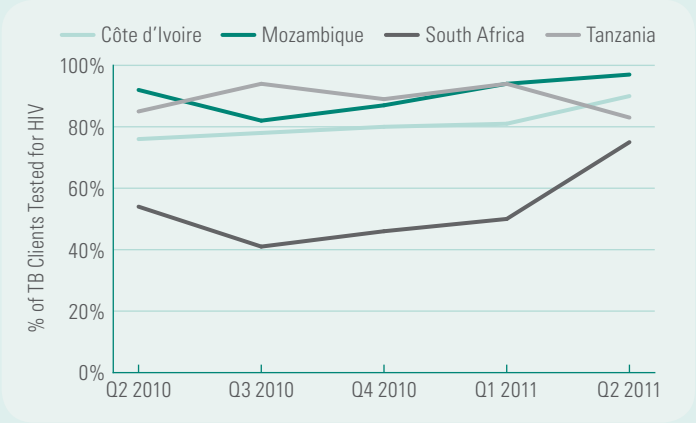


Figure 4. Percentage of TB clients tested for HIV at Foundation-supported facilities

The prevalence of HIV infection among TB clients for the most recent quarter for which data are available (second quarter of 2011) shows a great degree of variation between countries (see Figure 5). Foundation-supported facilities in Mozambique and South Africa were well above the African region average of 44% (as of 2010)[1] at 61% and 69%, respectively, while supported Côte d'Ivoire facilities had the lowest observed coinfection rate at 25%.

Enrollment of People Coinfected with TB and HIV on ART

As of 2010, 42% of people coinfected with TB and HIV in the African region were on ART, with South Africa leading the way at 54%.[1] This same trend was observed in Foundation-supported facilities, where in South Africa ART enrollment jumped from 23% in the second quarter of 2010 to just over 50% in the second quarter of 2011 (see Figure 6). Progress has been steady but less marked in Côte d'Ivoire and Tanzania, while Mozambique saw an overall decrease from 24% in the second quarter of 2010 to 14% in the second quarter of 2011.

Conclusion

This analysis has revealed that while integration of HIV counseling and testing is becoming a standard of care at TB clinics—with countries such as Mozambique testing more than 95% of TB clients for HIV—screening of HIV care clients for TB continues to lag behind. Additionally, as an organization that focuses on the health of women and children, the Foundation will continue to advocate that countries collect age- and gender-disaggregated data for TB/HIV indicators. Going forward, the Foundation will continue to serve as a resource for all of the countries it supports to ensure that quality TB services become a routine and well-integrated component of HIV care for both children and adults.

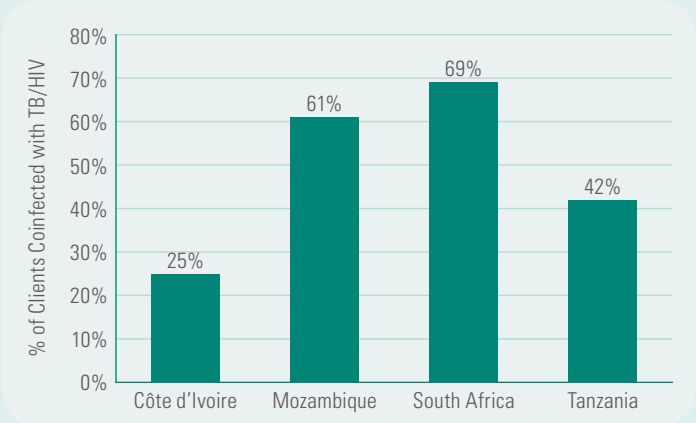


Figure 5. HIV infection among TB clients at Foundation-supported facilities (Apr–June 2011)

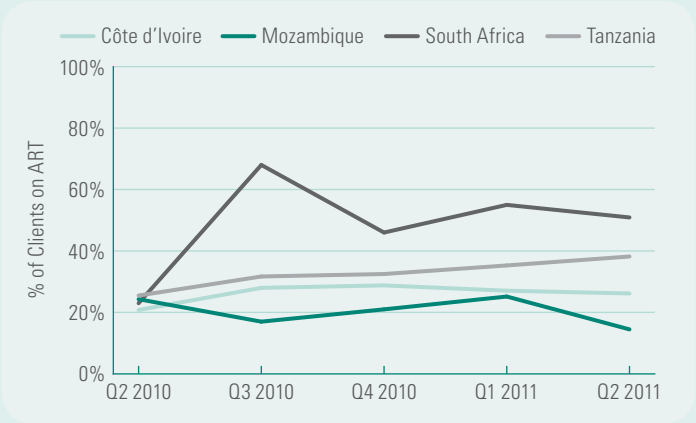


Figure 6. Percentage of TB/HIV-coinfected clients initiated on ART in Foundation-supported facilities

Use of Integrated Screening Forms for TB Detection and Client Tracking

Serge Agbo (sagbo@pedaids.org), Selina Mathias, Thabile Vezi, Clement Adje, Nehaben Ramanlal

The 2011 WHO guidelines on intensified TB case finding for people living with HIV[23] and many national guidelines state that people living with HIV should be screened for TB upon enrollment into HIV care and at every subsequent clinic visit. However, reporting of such information and client follow-up remains a persistent challenge. One possible solution being explored by several countries is the use of an integrated form that captures information on suspected TB cases as well as outcomes of the case investigation.

During site supervision visits in Côte d'Ivoire, Mozambique, South Africa, and Tanzania, Foundation staff tasked with supporting TB/HIV integration activities observed a variety of systems for TB symptom screening and documentation in Foundation-supported HIV care and treatment settings. The examples that follow demonstrate the wide variety of approaches currently being used for recording TB cases in HIV care and treatment settings, as well as the challenges associated with routine recording and analysis of TB-related client data.

South Africa

The current TB symptom screening tool in South Africa (Figure 7) was developed several years ago. A separate form is filled out at each clinic visit, so that a client who visits the clinic 10 times over a one-year period will have 10 separate screening forms filled out over the year. While useful for case detection, South Africa's TB screening form is limited to information on sputum collection and evaluation—both of which are performed by most laboratories in primary- and secondary-level health facilities—and does not contain diagnosis information.

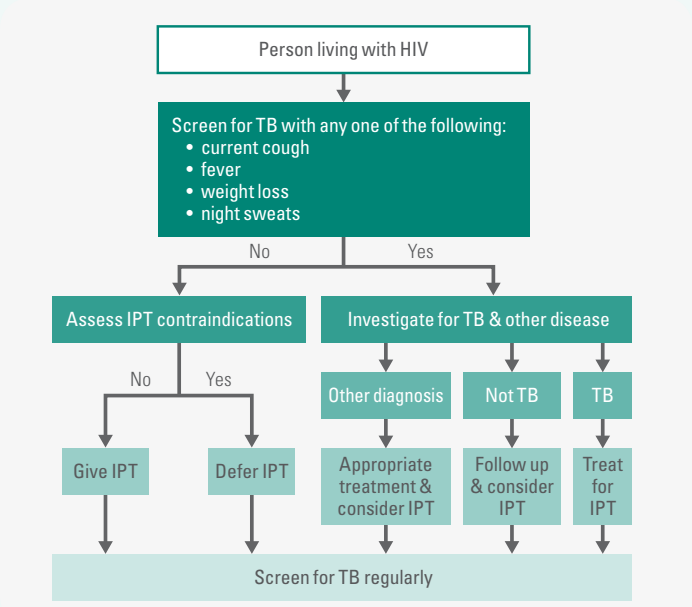


Figure 11. Algorithm for TB screening in adults and adolescents living with HIV in HIV-prevalent and resource-constrained settings (WHO)[25]

Côte d'Ivoire

Côte d'Ivoire developed a TB symptom screening tool (Figure 8) in 2010 that was then disseminated to HIV care and treatment facilities by HIV program implementing partners. The tool was designed to capture information at four consecutive client visits. The form, however, lacks information on final diagnosis and treatment. Once clients are suspected of having TB, they are referred to a TB center for diagnosis and treatment. When clients return from the TB center, information about the services they received there may not be requested or recorded by the HIV care provider and thus may not be available in the client's HIV file.

Tanzania

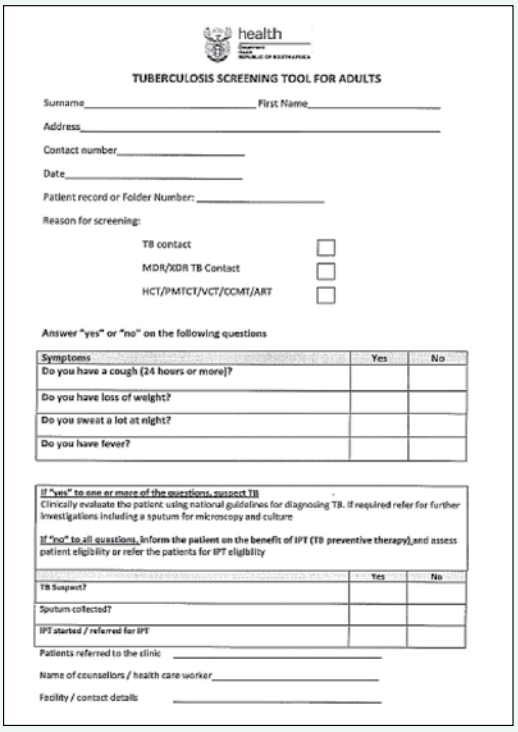
The Tanzania TB screening tool (Figure 10) has been revised many times by the TB/HIV coordination committee to make it more user friendly. Only one form is used per client, each form capturing at least 10 months' worth of activities. The screening form also contains information about other steps of the case detection cascade, including sputum microscopy results, chest X-ray results (when necessary and available), and evaluation outcomes.

Mozambique

The Mozambique form is very similar to the Tanzania form, but with additional columns (Figure 9). The additional information captured by this form includes cotrimoxazole treatment initiation and end dates. The inclusion of dates for delivery of each service makes it possible to assess timeliness of services. The form is also very user friendly, being simply written and easy to navigate. Unfortunately, Foundation site visits have revealed that the form is not yet widely available at Foundation-supported facilities.

Conclusion

Integrated screening and case detection forms can and should be optimized to promote more routine and comprehensive screening during HIV clinic visits and improved monitoring throughout the TB case detection cascade (e.g., TB symptom screening, evaluation, treatment, and referrals). Countries should harmonize national policies and procedures, as well as related forms, with the WHO case detection algorithm (Figure 11) to capture all key steps and provide a useful record for follow-up of suspected and confirmed cases. Development of comprehensive, multi-visit forms will go a long way toward strengthening efforts to integrate intensified case finding for TB within HIV care settings.



health

TUBERCULOSIS SCREENING TOOL FOR ADULTS

Surname_____ First Name_____

Address_____

Contact number_____

Date_____

Patient record or Folder Number: _____

Reason for screening:

TB contact ☐

MDR/XDR TB Contact ☐

HCT/PMTCT/VCT/CCMT/ART ☐

Answer "yes" or "no" on the following questions

Symptoms	Yes	No
Do you have a cough (24 hours or more)?		
Do you have loss of weight?		
Do you sweat a lot at night?		
Do you have fever?		

If "yes" to one or more of the questions, suspect TB

Clinically evaluate the patient using national guidelines for diagnosing TB. If required refer for further investigations including a sputum for microscopy and culture

If "no" to all questions, inform the patient on the benefit of IPT (TB preventive therapy),and assess patient eligibility or refer the patients for IPT eligibility

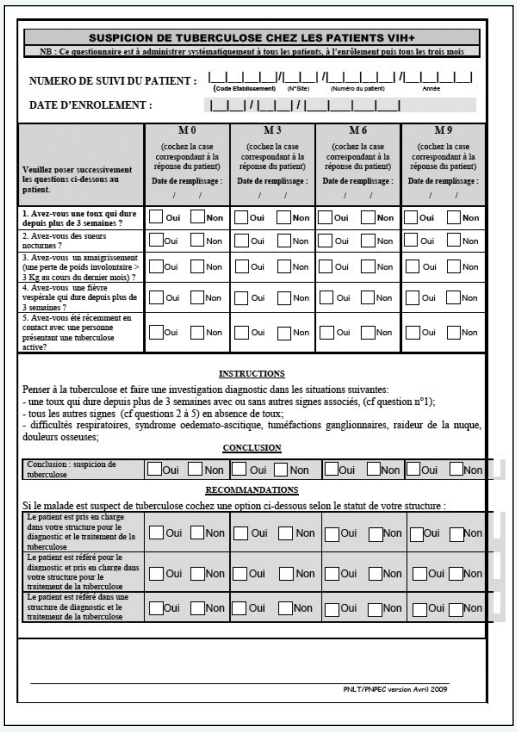
	Yes	No
TB Suspect?		
Sputum collected?		
IPT started / referred for IPT		

Patients referred to the clinic _____

Name of counsellors / health care worker_____

Facility / contact details _____

Figure 7. South Africa TB screening form



SUSPICION DE TUBERCULOSE CHEZ LES PATIENTS VIH+

NB : Ce questionnaire est à administrer systématiquement à tous les patients, à l'enrôlement puis tous les trois mois

NUMERO DE SUIVI DU PATIENT : |_|_|_|_|/|_|_|_| /|_|_|_|_|_| /|_|_|_|_|
(Code Etablissement) (N°Site) (Numéro du patient) Année

DATE D'ENROLEMENT : |_|_| / |_|_| / |_|_|_|_|

Veuillez poser successivement les questions ci-dessous au patient.	M 0 (cochez la case correspondant à la réponse du patient) Date de remplissage : / /	M 3 (cochez la case correspondant à la réponse du patient) Date de remplissage : / /	M 6 (cochez la case correspondant à la réponse du patient) Date de remplissage : / /	M 9 (cochez la case correspondant à la réponse du patient) Date de remplissage : / /
1. Avez-vous une toux qui dure depuis plus de 3 semaines ?	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non
2. Avez-vous des sueurs nocturnes ?	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non
3. Avez-vous un amaigrissement (une perte de poids involontaire > 3 Kg au cours du dernier mois) ?	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non
4. Avez-vous une fièvre vespérale qui dure depuis plus de 3 semaines ?	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non
5. Avez-vous été récemment en contact avec une personne présentant une tuberculose active?	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non

INSTRUCTIONS

Penser à la tuberculose et faire une investigation diagnostic dans les situations suivantes:
- une toux qui dure depuis plus de 3 semaines avec ou sans autres signes associés, (cf question n°1);
- tous les autres signes (cf questions 2 à 5) en absence de toux;
- difficultés respiratoires, syndrome oedemato-ascitique, tuméfactions ganglionnaires, raideur de la nuque, douleurs osseuses;

CONCLUSION

Conclusion : suspicion de tuberculose	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non

RECOMMANDATIONS

Si le malade est suspect de tuberculose cochez une option ci-dessous selon le statut de votre structure :

Le patient est pris en charge dans votre structure pour le diagnostic et le traitement de la tuberculose	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non
Le patient est référé pour le diagnostic et pris en charge dans votre structure pour le traitement de la tuberculose	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non
Le patient est référé dans une structure de diagnostic et le traitement de la tuberculose	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non	☐ Oui ☐ Non

PNLT/PNPEC version Avril 2009

Figure 8. Côte d'Ivoire TB screening form

República de Moçambique
Ministério da Saúde
Direcção Nacional de Promoção da Saúde e Controlo das Doenças
Programa Nacional de Controlo da Tuberculose

Questionário de Rotina para Rastreio da Tuberculose nos Pacientes Infectados pelo Vírus do HIV

O questionário deve ser utilizado para o rastreio activo da TB a todos os pacientes HIV positivos nas consultas de medicina, nas consultas de HIV/SIDA, e nas enfermarias de medicina

NOME: _____

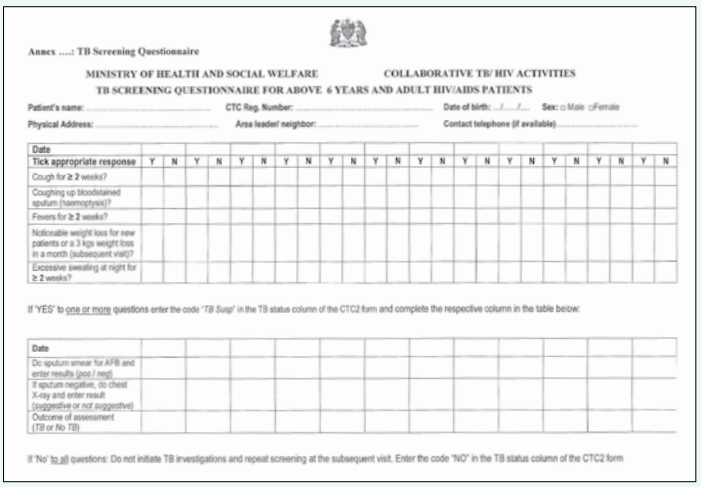
NID: _____

- SE RESPONDER "SIM" AS PERGUNTAS 1 OU 2:
pedir a baciloscopia do escarro e continuar o diagnóstico da TB
- SE RESPONDER "SIM" A PELO MENOS UMA DAS PERGUNTAS 3, 4, 5, 6:
Continuar com a avaliação da TB segundo os critérios clínicos (aumento gânglios aumentados, ascite, etc.), pedir RX se disponível , e referir ao necessário para avaliação médica.
- SE RESPONDER "NÃO" AS PERGUNTAS 1, 2, 3, 4, 5:
Terminar com a avaliação da TB e repetir o questionário na consulta seguinte (pelo menos a cada três meses); encaminhar para avaliação do eventual tratamento preventivo com a Isoniazida (TPI).
Se apenas tiver contacto com um caso de TB activa (pergunta 6) pode ser elegível para TPI.

Data do preenchimento do questionário:	Primeiro rastreio Data __/__/200	Segundo rastreio Data __/__/200	Terceiro rastreio Data __/__/200	Quarto rastreio Data __/__/200	Quinto rastreio Data __/__/200
1. Tosse a mais de 3 semanas?					
2. Tosse com sangue?					
3. Suores a noite a mais de 3 semanas?					
4. Febre a mais de 3 semanas?					
5. Perda de peso (mais de 3kg no último mês)?					
6. Alguém em casa está em tratamento da TB?					
Exames pedidos e resultados					
Baciloscopia — Data do pedido					
Baciloscopia — Data do resultado					
Baciloscopia — Resultado (+++/N2)**					
Radiografia — Data do pedido					
Radiografia — Data do resultado					
Radiografia — Resultado (+++/N2)**					
outros* — Data do pedido					
outros* — Data do resultado					
outros* — Resultado (+++/N2)**					
Seleccionar o tipo de TB: Pulmonar BK+ / Pulmonar BK- / Pulmonar com Multirr. Extra-pulmonar / Disseminada (Pulmonar+extra-pulmonar)					
Data do diagnóstico __/__/200	Início		Fim	Serviço onde recebe os medicamentos	
Tratamento da TB	Data __/__/200		Data __/__/200		
Profilaxia com Cotrimoxazole	Data __/__/200		Data __/__/200		
Tratamento preventivo com Isoniazida (TPI)	Data __/__/200		Data __/__/200		

* Ecografia, Punção de gânglios, Paracentese, Toracentese, etc.
** ND = não disponível

Figure 9. Mozambique TB screening form



Annex ….: TB Screening Questionnaire

MINISTRY OF HEALTH AND SOCIAL WELFARE — COLLABORATIVE TB/ HIV ACTIVITIES

TB SCREENING QUESTIONNAIRE FOR ABOVE 6 YEARS AND ADULT HIV/AIDS PATIENTS

Patient's name: ..... CTC Reg. Number: ..... Date of birth: ../../.. Sex: ☐Male ☐Female

Physical Address: ..... Area leader/ neighbor: ..... Contact telephone (if available).....

Date																										
Tick appropriate response	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Cough for ≥ 2 weeks?																										
Coughing up bloodstained sputum (haemoptysis)?																										
Fevers for ≥ 2 weeks?																										
Noticeable weight loss for new patients or a 3 kgs weight loss in a month (subsequent visit)?																										
Excessive sweating at night for ≥ 2 weeks?																										

If 'YES' to one or more questions enter the code '*TB Susp*' in the TB status column of the CTC2 form and complete the respective column in the table below:

Date																										
Do sputum smear for AFB and enter results (pos / neg)																										
If sputum negative, do chest X-ray and enter result (suggestive or not suggestive)																										
Outcome of assessment (*TB or No TB*)																										

If 'No' to all questions: Do not initiate TB investigations and repeat screening at the subsequent visit. Enter the code "NO" in the TB status column of the CTC2 form

Figure 10. Tanzania TB screening form

continued from pg. 5

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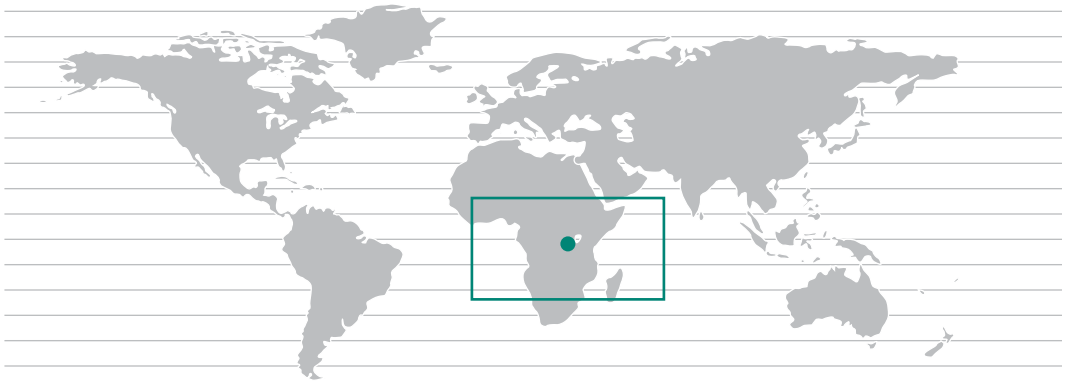
Country Program Notes



RWANDA:

Establishing a One-Stop Service Model for TB/HIV

Jacques Rutabagaya (jrutabagaya@pedaids.org), Dieudonne Ndatimana, Diane Gashumba, Lior Miller

The Foundation's Rwanda program has supported the provision of prevention of mother-to-child transmission (PMTCT) services to more than 224,000 women, enrollment of more than 27,000 clients into HIV care, and initiation of more than 11,000 eligible clients on antiretroviral therapy (as of June 30, 2011).

Background

Until 2007, Rwanda's national Integrated Control Program for the Fight against Tuberculosis and Leprosy (PNILT) and the Rwanda Biomedical Center/Institute of HIV Diseases Prevention and Control (RBC/IHDPC, formerly the Treatment and Research on AIDS Center [TRAC]) were separately responsible for responding to the country's TB and HIV epidemics, respectively. The vertical approach used for service implementation of these programs was not ideal due to the closely linked nature of these two diseases.

The push for greater integration of TB and HIV services led to the establishment of a TB/HIV "one-stop" service model. The model was first piloted in three health facilities in 2007 (Kicukiro Health Center, Gisenyi District Hospital, and Kabgayi District Hospital) and was later rolled out to all district hospitals and health centers in the country certified as centers for the diagnosis and treatment of TB.

Implementing the One-Stop Service Model

The model that was developed aimed to achieve the following three objectives:

- Decrease the burden of TB among people living with HIV through systematic TB screening for people living with HIV, provision of isoniazid preventive therapy (IPT), and implementation of TB infection control measures (including administrative, environmental, and personal respiratory control measures).
- Decrease the burden of HIV among people with TB through HIV testing and counseling of all TB-positive and TB-exposed clients, along with HIV-prevention education. For coinfected clients, provide cotrimoxazole prophylaxis, HIV care

and support, and for those eligible, antiretroviral therapy (ART).

- Establish mechanisms for collaboration through creation of a national working group for TB/HIV activities, which carries out joint TB/HIV planning, surveillance of HIV prevalence among TB clients, and monitoring and evaluation of integrated TB/HIV care and treatment activities.

Certification of sites where the model was implemented was conducted through two-week trainings—organized by PNILT and the International Center for AIDS Care and Treatment Programs (ICAP)—to cross-train HIV and TB service providers in care, treatment, and prevention of these two diseases. The first week of the training focused on classroom theory and the second week consisted of an on-site practicum in implementation of the new care model. The specific programmatic interventions employed in this one-stop model are illustrated on the following page.

Foundation Involvement

The Foundation has actively contributed to the development of the one-stop service model since its initiation through participation in the national TB/HIV technical working group. The Foundation has also provided financial support for training of health providers in the seven districts it supports, as well as direct implementation support. In 2008, the model was piloted in two additional Foundation-supported district hospitals and in 2009, the model was extended to a total of seven TB diagnosis and treatment centers, covering both rural sites in the East Province and urban sites in Kigali City.

Photo credit: James Pursey

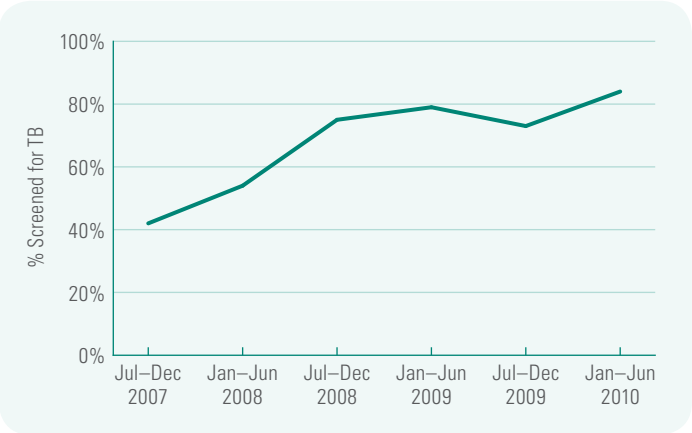


Figure 12. TB screening among HIV-positive clients enrolled in care from July 2007 through June 2010 at 30 Foundation-supported health facilities

Achievements to Date

The Foundation supports the Ministry of Health (MOH) in collecting data on TB/HIV indicators every six months. In 2010, the MOH added TB/HIV integration indicators to the monthly HIV reporting tool (TRACNet) to facilitate regular monitoring of the TB/HIV integration program. Data from the 30 Foundation-supported ART sites show a steady increase in the percentage of HIV-positive clients in care screened for TB (see Figure 12), from 42% in December 2007 to 84% in June 2010.

Challenges

Staff transfers at both HIV and TB clinics are common and result in a loss of skilled health care workers, which has slowed program improvements. Documentation and data quality are not yet optimal and biannual reporting makes data less reliable because of the long time elapsing between recording and collection. At some facilities carrying out the one-stop approach, there was limited clinic space for isolation of people with TB.

Next Steps

Despite these challenges, the Foundation-supported Rwanda program, in collaboration with the MOH, has made great strides in TB/HIV integration through this innovative model and has made plans to further improve related interventions. The RBC/IHDPC has also recently announced an important change in ART initiation criteria for TB/HIV-coinfected people: All HIV-positive clients who develop active TB will now be eligible for ART regardless of their CD4 count. In addition, the RBC/IHDPC also adopted a policy to provide IPT to all HIV-positive clients without active TB. Two Foundation-supported districts will participate in the national roll-out of the new IPT protocol between January and December 2012.

Components of Rwanda's One-Stop TB/HIV Service Delivery Model

At ART clinics:

- Systematic screening for TB at ART enrollment and during follow-up visits
- Testing and other exploratory examinations for TB (if the TB screening result is positive)
- Referral of HIV-positive clients with TB infection to TB services and continuation of ART within the TB care setting to prevent the risk of transmitting TB to other clients in the HIV care setting
- Referral of TB-positive clients to TB services for both TB and HIV treatment, in order to prevent transmission of TB in HIV care settings

At TB clinics:

- Initiation of TB treatment and continuation of ART for eligible clients (according to the national protocol), taking into account the drug interactions between ART and TB treatment
- Scheduling of clients' appointments to perform TB check, CD4 check, disease monitoring, and medical consultations
- Transferring and accompanying clients back to the ART clinic with their HIV medical records to continue treatment (after completion of TB treatment)
- Provider-initiated HIV testing of clients with TB whose HIV status is unknown

UGANDA:

Integrating TB Screening in Antenatal Care Clinics Using Quality Improvement Methods

Moses Walakira (mwalakira@pedaids.org), Roy Pacutho, Stavia Turyahabwe, Mary Namubiru, Eliab Kajungu, Edward Bitarakwate

The Foundation's Uganda program currently supports delivery of prevention of mother-to-child transmission of HIV (PMTCT) services at 202 clinic sites. Since 2000, the program has supported delivery of PMTCT services to more than 2.1 million women (as of June 30, 2011).

Background

TB represents a significant public-health burden in Uganda, with an estimated 70,000 incident cases in 2010, 54% (38,000) of which were in people living with HIV.[1] In 2006, the National Tuberculosis and Leprosy Program (NTLP) adopted the World Health Organization (WHO) Stop TB Strategy[2] and included the strategy in the Uganda Health Sector Strategic Plan II (HSSP II), launched in that same year. While the HSSP II aimed to achieve global TB case detection in Uganda, this has been a challenge to date. Within the Foundation-supported Southwestern Region (population 3.5 million), just 29.8% (3,468) of cases were detected in 2010 out of a projected 11,640.[3]

Prioritizing Intensified TB Case Finding in Antenatal Care

In its efforts to support the Ministry of Health (MOH) in implementing intensified case finding, the Foundation's Uganda program began prioritizing active case finding for TB in March 2011, beginning with specific subpopulations, such as HIV-positive pregnant women attending antenatal care (ANC) clinics. While the MOH recommends integration of TB/HIV care into ANC services and TB screening of pregnant women in high-prevalence areas, it is estimated that fewer than half of HIV-positive pregnant women in Southwestern Uganda are screened for TB.[3]

As part of this MOH effort, the Foundation directly supported various health facilities, including Kitwe Health Center IV (Kitwe HCIV), in integrating TB screening into ANC to ensure early identification of pregnant women with TB. Kitwe HCIV is located in a rural area and offers HIV care and treatment services, maternal and child health services, TB diagnosis and treatment, and laboratory services. Kitwe is also a high-volume PMTCT site. These efforts, in conjunction with the Foundation's broader quality improvement (QI) initiative, have yielded promising early results.

Integration of TB Screening for HIV-Positive Pregnant Women Using a QI Approach

A QI learning session was conducted by MOH and Foundation technical staff in April 2011 for 40 health care workers from 20 facilities in the Southwestern Region, including two health workers, a midwife, and a clinical officer from Kitwe HCIV. After the session, which included brainstorming, flowchart creation, and root cause analyses, an on-site QI team was formed. The team is comprised of 14 members (clinical, laboratory, nursing, and lay staff) who meet monthly to review data on select indicators and identify and analyze performance gaps.

Baseline data for the period January through April 2011 indicated that the median proportion of HIV-positive pregnant women screened for active TB was 47.4%. Armed with these data, the newly formed QI team identified possible causes of the low observed TB screening rate. These included lack of TB-related job aids, limited health worker knowledge on TB testing and diagnosis, and limited understanding among ANC staff regarding when to provide TB screening and care.

TB Screening Job Aid

TB-related questions to guide health care workers:

Has the patient been coughing for 2 weeks or more?	Yes _____	No _____
Has the patient coughed up sputum stained with blood?	Yes _____	No _____
Has the patient had persistent fevers for 3 weeks or more?	Yes _____	No _____
Has the patient had noticeable weight loss (> 3 kg) in the last month?	Yes _____	No _____
Has the patient had night sweats for 3 weeks or more?	Yes _____	No _____

Proposed health care workers' actions based on feedback from questions:

- **If Yes to question 1 or 2**, request sputum test and refer to clinician for further investigations. **Direct the patient to a designated area for people with chronic cough.**
- **If No to questions 1 and 2, and Yes to any other question**, refer to clinician for further investigation.
- **If No to all questions**, repeat TB assessment at subsequent visits.

To ensure care providers had up-to-date knowledge on management of TB and HIV coinfection, five health-care workers from Kitwe HCIV, including one midwife, attended a training-of-trainers (TOT) course conducted by attendees of the April learning session, along with Foundation and MOH staff. Topics covered included TB screening and use of the TB case-finding form. The MOH also developed a job aid for health care workers, consisting of five TB-related questions and suggested next steps based on client responses (see above).

Based on a client flow analysis performed by the Kitwe QI team, a new client flow process was implemented in late April 2011, following the TOT. Pregnant women arriving for ANC services receive group health educational counseling and are then registered at the clinic and triaged. It is during this triage that TB screening is performed and recorded in the ANC register (the aforementioned job aid is used at this stage). Suspected active TB cases are fast-tracked and sent to the laboratory for sputum sample collection and examination, and then to a clinician for further evaluation.

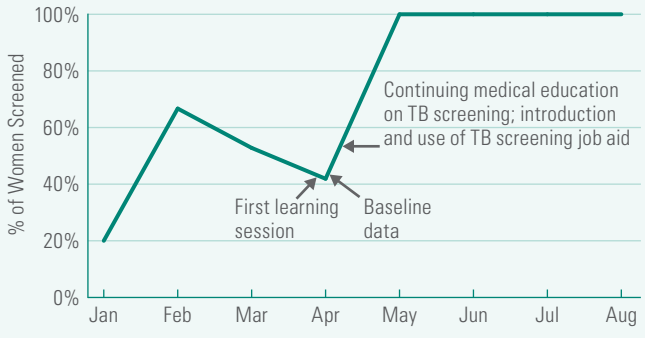


Figure 13. Screening of HIV-positive pregnant women for active TB at Kitwe HCIV (Jan–Aug 2011)

Results

The proportion of HIV-positive pregnant women screened for active TB in ANC increased from 41.9% in April 2011 to 100% in May 2011 (where it has remained for the last two quarters), following introduction of the TB screening job aid (see Figure 13). Between January and August 2011, one case of active TB was confirmed among all HIV-positive pregnant women screened and this woman was initiated on antiretroviral therapy at Kitwe.

Next Steps

Following these observed improvements, TB screening has been introduced in other departments at Kitwe, including the HIV and outpatient clinic. TB screening has also been introduced at two other facilities and will soon be rolled out to all 40 Foundation-supported health facilities with trained QI teams. The midwives at Kitwe are also monitoring their performance on a monthly basis using data on TB screening, and all health workers are supported through regular mentorship by MOH and district staff as well as Foundation program officers. Planned next steps include implementation of contact tracing for confirmed TB cases and collaborative learning between QI teams.

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KENYA:

Implementing the Five I's Model

Dave Muthama (dmuthama@pedaids.org), Felix Mboya, Lucy Matu, Judith Kose, Peter Savosnick

Photo credit: Mia Collis

Since 2000, the Foundation's Kenya program has supported the provision of services for the prevention of mother-to-child HIV transmission (PMTCT) to more than 950,000 pregnant women, enrollment of more than 88,000 clients into HIV care and support, and initiation of more than 35,000 clients on antiretroviral therapy (as of June 30, 2011).

Background

Kenya has a generalized HIV epidemic and according to the World Health Organization (WHO) is one of the 22 countries in the world with the highest TB burdens.[1] The national response to these two diseases has historically been driven by two separate divisions within the Ministry of Health's (MOHs) Department of Primary Health Care: the National AIDS and STD Control Program (NASCOP) and the Division of Leprosy, Tuberculosis and Lung Disease (DLTLD). In 2003, collaboration between NASCOP and DLTLD began and these efforts were further catalyzed by Kenya's adoption of the WHO guidance on collaborative TB/HIV activities in 2006.[2]

Since 2004, nationwide efforts to decrease the burden of HIV among people with TB have been emphasized. However, interventions to decrease the burden of TB among people living with HIV—such as intensified case finding (ICF), infection control (IC), and isoniazid preventive therapy (IPT) (i.e., the "Three I's")—have been slower to take hold.

In 2010, NASCOP and DLTLD redefined these interventions as the "Five I's": ICF, IC, IPT, integration of TB/HIV activities, and immediate initiation of ART in TB/HIV-coinfected clients. This new model was rolled out nationally and at Foundation-supported Pamoja Project sites in January 2011. The Pamoja Project operates in 11 districts in Kenya's Nyanza Province with the aim of integrating delivery of PMTCT with TB and HIV care, treatment, and prevention services at 155 lower-level health facilities.

Components of the Five I's Model

Integration of TB/HIV activities: Both HIV and TB care clinics offer services for both diseases. This has been extended to other settings, such as family planning and maternal and child health (MCH) clinics, to increase efficiency and minimize missed opportunities.

Infection control (IC): DLTLD developed IC guidelines and an infection assessment tool, which guide facilities in developing an IC plan and assessing the risk of TB transmission in each department. The IC plan includes administrative, personnel, and environmental engineering measures that are prioritized based on feasibility, urgency, affordability, and practicability at each facility.

Isoniazid preventive therapy (IPT): Isoniazid (INH) is a cornerstone first-line regimen for TB treatment. Despite growing concern about INH resistance, DLTLD guidelines are clear on the use of INH in children. Children under five years of age who have a known smear-positive household contact (once active TB in the child has been ruled out) should be given IPT, while the use of IPT in adults living with HIV is only allowed through research-approved sites.

Intensified case finding (ICF): Intensified TB screening among people living with HIV occurs during all HIV clinic visits. Two versions of the ICF card (for adults and children) have been designed and include a five-question symptom screen; if a patient answers "yes" to any question, a sputum test is performed.

Immediate initiation of ART: The national goal is to initiate ART in all TB/HIV-coinfected clients by the end of the second week of anti-TB treatment, regardless of the client's CD4 count.

Results

Promising outcomes have been observed following roll-out of the Five I's interventions at Pamoja Project facilities. Although reporting tools have not yet been adjusted to reflect the impact of the new interventions, information from a few facilities has been obtained on some indicators.

1. **TB/HIV integration:** Integrated TB/HIV services have been introduced at Foundation-supported TB, MCH/family planning, and HIV care and treatment sites. According to reports from health care staff, this has led to reductions in wait times for clients (clients previously had to line up at a separate service point for each service), better client follow-up (both TB and HIV are captured in one register, ensuring that one provider or division tracks each client), and improved quality of care (as indicated by increasing numbers of pregnant women and coinfected clients receiving CD4 test results and being initiated on ART).

2. **Infection control (IC):** More than 65% of the 155 Pamoja sites had completed the TB infection risk assessment as of September 2011. This has resulted in rearrangement of patient flow and triage to reduce TB transmission risk. The majority of sites have established early case finding, attending first to clients with a chronic cough. Sites without laboratories have been equipped to collect sputum samples and transport them to the nearest microscopy site on a weekly basis (thanks to Pamoja Project funding support), with results returned in batches the following week.

3. **Isoniazid preventive therapy (IPT):** IPT will be rolled out to all TB-exposed children under five as soon as INH is available from the MOH. Peer counselors assigned to each site will be responsible for identifying exposed children.

4. **Intensified case finding (ICF):** An increase in the number of HIV-positive clients on care being diagnosed with active TB has been observed. According to summary reports from six districts, 842 HIV-positive clients were tested for TB between the fourth quarter of 2010 and the second quarter of 2011, with 17% testing positive for TB and enrolled on TB treatment.

5. **Immediate initiation of ART for TB/HIV-coinfected clients:** Data from three Pamoja sites show notable progress in roll-out of this intervention (Figure 14). During the period from the fourth quarter of 2010 to the second quarter of 2011, ART uptake rose steadily, from 61% in the first quarter to 83% in the third quarter.

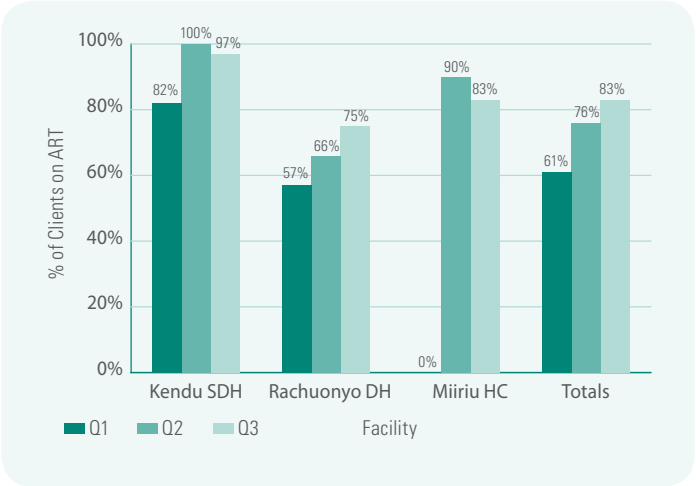

Figure 14. ART initiation among TB/HIV-coinfected clients at three Pamoja sites (October 2010–June 2011)

Next Steps

The Five I's model is now being rolled out to all Pamoja-supported facilities in 12 districts of Kenya, and work will be ongoing to further optimize service delivery. A formal assessment to measure the impact of these interventions is being planned and should be completed by September 2012.

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LESOTHO:

Supporting Roll-Out of the Three I's at Maternal and Child Health and Antiretroviral Therapy Clinics

Majoalane Mokone (Mmokone@pedaids.org), Appolinaire Tiam, Seble Kassaye, Celine Gounder

Established in 2006, the Foundation's Lesotho program provides technical support to the Lesotho Ministry of Health and Social Welfare (MOHSW) to increase prevention of mother-to-child HIV transmission (PMTCT) service delivery in public and private maternal, neonatal, and child health (MNCH) and antiretroviral therapy (ART) facilities. As of June 30, 2011, the Foundation was supporting 187 MNCH and ART sites in Lesotho that had provided PMTCT services to more than 95,000 women and initiated more than 59,000 clients on ART.

Background

The national incidence of TB in Lesotho is the seventh highest globally at 633 cases per 100,000 people, and an estimated 77% of people with TB were living with HIV in 2010.[1] Until very recently, TB testing for people living with HIV was not routinely provided, particularly in MNCH settings. In 2011, the Lesotho MOHSW, with collaborative technical support from the Foundation and other partners, developed and began rolling out new national guidelines for TB and HIV integration based on the WHO-recommended "Three I's" strategy (see page 4 for more about the Three I's).

Rolling Out the Three I's

The MOHSW requested support from the Foundation, as well as other HIV program–implementing partners, to integrate preventive TB services within supported MNCH care and ART facilities in line with the new national TB/HIV guidelines. The Foundation partnered with the Johns Hopkins Center for TB Research (JHU CTR) to support the MOHSW with systems development and technical mentoring. This unique collaboration combined the respective organizations' research and service delivery expertise on HIV, PMTCT, and TB to identify best practices on HIV and TB programming, clinical mentoring, and implementation science, and to support national implementation of the Three I's.

An MOHSW technical working group, created to support the national TB/HIV integration work, made health-worker training on the new guidelines a priority before national roll-out. A training-of-trainers curriculum—developed by TB and HIV experts from JHU CTR in collaboration with the Foundation, the MOHSW, and other implementing partners—was conducted by the JHU CTR in March 2011. District-level trainees then trained health workers at MNCH facilities in June and July of 2011 using the same core curriculum. Foundation technical advisors and directors assisted the MOHSW and partners in facilitating these trainings.

In July 2011, the Foundation supported the roll-out of the national Three I's approach immediately after these trainings in two sites. Foundation-supported MNCH nurses oversaw implementation at each facility. The presence of Foundation research field supervisors at MNCH sites, together with support from JHU, ensured that operational research of the Three I's approach was integrated into routine delivery of PMTCT services.

In addition to support for the roll-out of the national guidelines, the Foundation and JHU CTR supported Lesotho's national reference and research laboratory in the acquisition of a desktop GeneXpert machine that simultaneously detects *Mycobacterium tuberculosis* and tests for drug resistance in less than two hours.[3] The GeneXpert is an innovative diagnostic tool that is expected to improve timely TB diagnosis and early detection of drug-resistant TB in Lesotho.

Key Findings

Anecdotal reports suggest that clients have welcomed the introduction of TB-preventive services in MNCH and ART facilities. HIV-positive clients at ART and MNCH facilities expressed appreciation for the increase in access to timely TB diagnosis and treatment. Between June 23 and August 31, 2011, a total of 137 MNCH and ART clients were initiated on isoniazid preventive therapy (IPT), and as of December 2011, according to clinic data reports, all are stable with no side effects reported.

Among MNCH staff, there was initially some resistance, largely due to fear of increased workloads. However, as staff gained more technical knowledge on integration and received increased mentorship support from the Foundation and other partners, resistance has subsided. An increased commitment to prevent TB in HIV-positive clients among health care workers trained on TB/HIV diagnosis and care has also been observed. Additionally, placement of field supervisors at facilities has strengthened the proper completion of health facility registers.

While there has been widespread acceptance among health care staff and clients of the expanded TB treatment services provided at Foundation-supported MNCH and ART facilities, some challenges have been noted. Staff workloads at ART centers, MNCH sites, and central laboratories have increased as more suspected TB cases are assessed. Additionally, a shortage of microscopists (lay health workers trained in carrying out sputum microscopy) has been reported. These workers are necessary for TB diagnostics in accordance with national recommendations. This demonstrates the importance of strengthening human resources in conjunction with the roll-out of new or expanded services.

Another observed challenge has been shortages of anti-TB drugs. The procurement of isoniazid is still pending in Lesotho, and in the interim, the TB/HIV technical working group has decided to prioritize maintenance of clients already initiated on IPT, resulting in delayed treatment initiation for newly

Photo credit: Jon Hrusa

diagnosed TB cases. This drug management challenge has not affected health education, however, so active TB case finding and infection control continue. Those suspected of having TB are still receiving thorough diagnostic services. A key lesson learned from this experience is that it is imperative to carry out appropriate quantification of necessary commodities and to ensure a steady drug supply with strong logistic support prior to initiating a new program.

Next Steps

In the face of dual epidemics such as TB and HIV, innovative approaches are needed to ensure increased access to care. Partnering with JHU CTR to support the MOHSW, although not yet thoroughly evaluated, has proven to be a promising approach to increasing TB prevention among HIV-positive individuals. Operations research on this program is currently under way, and it is hoped that these findings will demonstrate increased access to TB counseling, testing, and treatment among people living with HIV in Lesotho.

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CÔTE D'IVOIRE:

Establishing Same-Day HIV Counseling and Testing at a Major TB Center

Serge Agbo (sagbo@pedaids.org), Sabrina Eagan, Joseph Diby, Jacqueline Sirima, Landry Sokolo

The Foundation's Côte d'Ivoire program has supported the provision of prevention of mother-to-child HIV transmission (PMTCT) services to more than 846,000 women, enrollment of more than 187,000 clients into HIV care, and initiation of more than 89,000 eligible clients on antiretroviral therapy (ART), including more than 5,000 children under the age of 15 (as of June 30, 2011).

Background

In 2008, Côte d'Ivoire's National Tuberculosis Program reported that the proportion of people with TB undergoing HIV counseling and testing was very low, at less than 50%.[1] Based on this finding, the Foundation-supported Côte d'Ivoire program began collaborating with TB facility clinical staff to improve HIV counseling and testing among newly diagnosed TB clients. This collaborative approach, based on quality improvement (QI) methods, was first rolled out in 2008 in the country's major TB treatment center, CAT Adjamé, located in the capital city of Abidjan.

Photo credit: Olivier Asselin

CAT Adjamé, which receives Foundation support for its HIV care and treatment services, diagnoses about 20% of all TB cases in the country. A Foundation-led baseline assessment performed in June 2008 revealed that only 40% of TB clients were being counseled and tested for HIV, and of these only 30% received their test results. Adding to this challenge was the fact that little information was being recorded by facility staff in patient registers on TB/HIV coinfection. It was also observed that newly diagnosed TB clients had to return to the clinic on a separate day for HIV counseling and testing, and that many TB staff lacked knowledge of HIV diagnostics and treatment.

Establishment of Same-Day HIV Counseling and Testing for People with TB

The baseline assessment findings prompted a series of QI activities—undertaken by the Foundation, John Snow Inc., and facility staff—aimed at improving uptake of HIV testing as well as delivery of test results among people with TB at CAT Adjamé. With staff support, a system was established through which people with TB would be voluntarily tested for HIV and receive their results during a single visit.

Raising staff and client awareness and building staff capacity were prioritized as first steps toward implementing this new system. To determine specific capacity-building needs, the Foundation, together with facility staff, conducted a baseline assessment to measure site performance and identify specific challenges related to delivery of HIV counseling and testing. Based on these findings, a variety of activities were planned, including redesigning of patient flow,

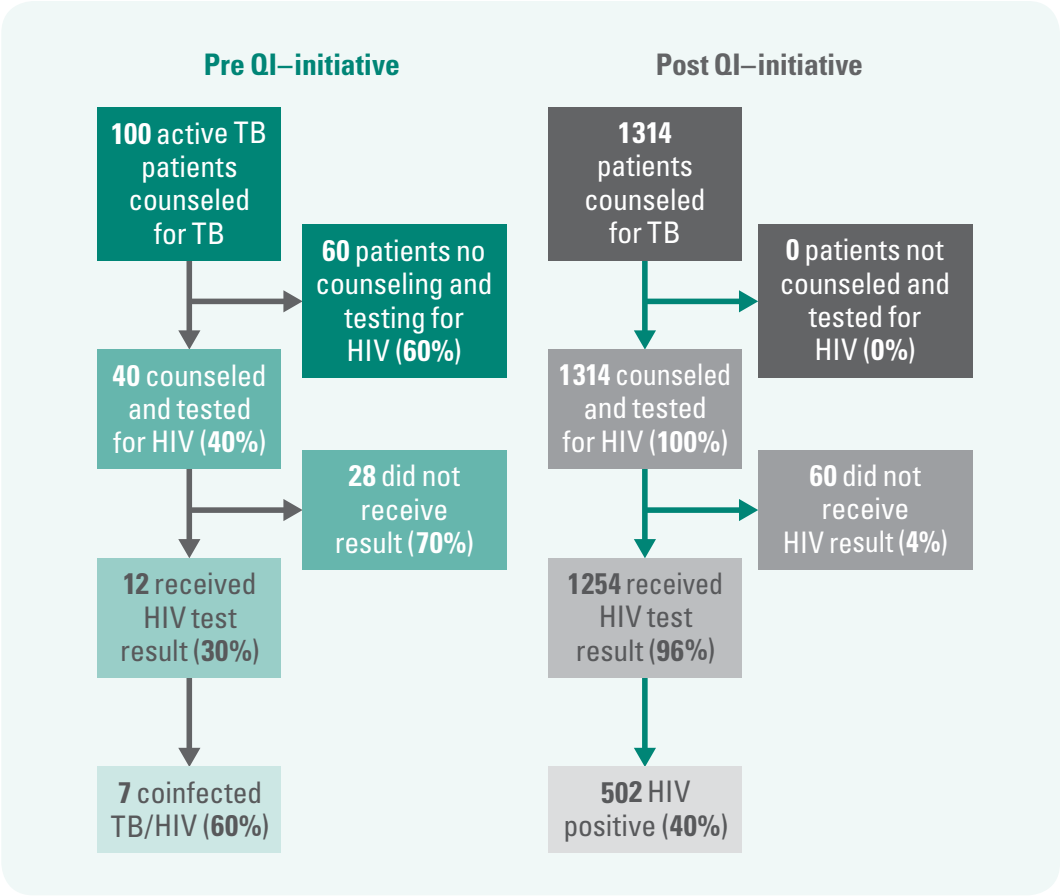

Figure 15. Cascade and performance in HIV testing for TB clients before and after implementation of the quality improvement (QI) project

creating a new TB/HIV counseling space, staff capacity building (for nurses, counselors, and social workers on HIV testing and counseling and recording of HIV services in TB registers), and use of a rapid HIV test (a finger-prick test with same-day results).

Results

Five months after these activities were initiated, the Foundation conducted a follow-up assessment using the same tools and indicators as the baseline assessment. The follow-up assessment found that the percentage of TB clients counseled and tested for HIV had risen from 40% to 100%, with 96% of those tested receiving their results (up from 30%). The assessment also revealed that 40% of TB clients were HIV-positive. Improvements in HIV testing uptake were attributed to heightened awareness among staff, increased attention to documentation, improved patient flow, and introduction of same-day HIV rapid testing (see Figure 15). (Note: While this project did not monitor antiretroviral therapy initiation among TB clients found to be HIV-positive, this activity was proposed as part of a future project.)

Conclusion

Early diagnosis of HIV infection in people with TB is crucial for prevention of mortality and morbidity due to TB/HIV coinfection. The QI approaches applied at CAT Adjamé represent promising practices for improving HIV testing among people with TB at a busy TB center.

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Q&A with…

Serge Agbo

Serge Agbo, MD, MPH, is the Foundation's global focal person for TB/HIV integration based in Côte d'Ivoire. He currently oversees TB/HIV activities in all Foundation-supported countries, with a primary focus on the U.S. Centers for Disease Control and Prevention (CDC)–funded Project HEART country programs in Tanzania, Mozambique, South Africa, and Côte d'Ivoire. In this role, Dr. Agbo is involved in the design, development, monitoring, and evaluation of TB/HIV integration efforts at the national and subnational levels.

Q: When did you start working on TB/HIV and why?

I started working on TB/HIV issues when I was quality officer for the Foundation's Côte d'Ivoire program in 2007. In the fight against HIV, I believe that management of TB is an essential part of the solution. I therefore started integrating TB into my work with the inclusion of TB in the first set of quality improvement indicators the Foundation was developing at the country level and later at the global level.

Q: What are your favorite aspects of TB/HIV work, and what do you enjoy most about your work for the Foundation?

I really enjoy working on two major infectious diseases in an integrated fashion, and it's rewarding to be able to apply the technical expertise I gained through my years of public-health field experience, such as data management and analysis, monitoring and evaluation, and quality improvement, to such an important issue. The Foundation also has given me the opportunity to take a creative, innovative approach to problem solving, which is very fulfilling.

Q: If you had five minutes with the Foundation's global leadership team, what would you advocate for related to TB/HIV?

It is impossible to fight HIV without addressing TB. Managing TB is a major way to ensure the long-term health of people living with HIV (with or without antiretroviral therapy). It's crucial to start building our expertise in this area now, since pediatric TB/HIV coinfection will be a major hurdle as we work toward eliminating pediatric AIDS. Childhood TB is still a neglected disease and is difficult to diagnose and manage. Even an uninfected but HIV-exposed child is at high risk of getting TB. While the first step is preventing mother-to-child transmission of HIV, the second step should include preventing and treating TB in the children and families we have access to through our work.

Q: What is the most challenging aspect of TB/HIV integration, and how do you think the Foundation can better address this challenge?

Getting TB and HIV professionals to think outside of their usual "boxes." These two programs have been evolving separately for many years, and it can be difficult to find people at the Ministry of Health level who think in terms of fighting the "dual epidemics," with both diseases addressed together. Successful integration of services in devoted TB or HIV settings is also dependent on political will. Facilities that have been willing to take this on themselves are performing well, despite very limited resources, and the Foundation can play a role in documenting and sharing these promising practices and advocating for their wider adoption.

Q: What can be done to better involve communities in TB/HIV efforts?

Part of the solution to reducing the burden of major infectious diseases such as TB, HIV, and malaria lies in involving and engaging the community. We have evidence of successful use of community-based organizations and community health workers to support TB efforts, such as the successful implementation of the TB approach known as directly observed therapy, short course (DOTS), in even the most remote settings. I am certain that more attention and investment in this area will yield positive outcomes.

Q: What are some of the most innovative approaches to TB/HIV integration that you have seen in your work and that should be further scaled up?

The research and development of new and more effective diagnostic tools for TB has been slow. In countries where the disease is most prevalent, diagnosis has depended largely on one archaic test, smear microscopy, that has been in use for the last 120 years! However, the promising new GeneXpert TB diagnostic test introduced in 2010 by the Foundation for Innovative New Diagnostics represents a major turning point. While the test cannot be used for diagnosing children or people with extrapulmonary TB (TB occurring outside of the lungs), it is a remarkable tool. I'm happy that the Foundation has recently engaged in the implementation of the GeneXpert test through its research project in Lesotho.

Q: Do you have a professional hero, and if so, how has that person inspired you?

In public health, I admire Dr. Kevin De Cock. I have been following him since he was a CDC representative in Côte d'Ivoire. He is now director of the Center for Global Health at the CDC. I met him twice, and the second time was at the International AIDS Society meeting in Vienna two years ago. He has tremendous field experience and public-health expertise. I would love to follow in his footsteps.

Briefly Noted…

Rolling Out New National TB and HIV Integration Guidelines in Tanzania

Starting in February 2009, the Foundation has been supporting the Tanzania Ministry of Health and Social Welfare (MOHSW) with implementation of the country's national guidelines on TB/HIV integration at 165 sites in the five Foundation-supported regions (Kilimanjaro, Arusha, Lindi, Tabora, and Shinyanga). These activities are overseen by the Foundation's program officer for TB/HIV collaborative activities.

Results to date have been encouraging. During the second quarter of 2011, a total of 64,271 clients received HIV care in all 165 Foundation-supported HIV care and treatment sites. Of those, 56,841 (88%) were screened for signs of TB (compared with 69% screened in the first quarter of 2010). Of those screened, 619 were confirmed by sputum microscopy to have active TB and prescribed anti-TB therapy.

Challenges to date have included clients' failing to complete the referral process, limited facility space, failure to complete registers, and service providers' having difficulty in following the TB screening tool. Going forward, the Foundation will continue to support strengthening of these services through site-level supportive supervision and mentorship. The Foundation is also actively advocating for greater involvement of and collaboration between the National TB and Leprosy Control Program, the National AIDS Control Program, and the MOHSW to better support TB/HIV integration nationally.

For more information on this program, please contact Mercy Nyanda (mnyanda@pedaids.org).

Integrating TB and HIV Services in Cameroon

In 2008, the Cameroon Baptist Convention Health Board (CBCHB) appointed a new medical director of TB and HIV programs and began cross-training TB- and HIV-focused nurses and doctors with the goal of integrating HIV and TB care services in CBCHB facilities. In six facilities, TB and HIV services are offered in the same building, making referrals easier for clients. All newly diagnosed TB clients are tested for HIV, and HIV clients presenting with symptoms of TB are screened for TB.

Following CD4 count assessment and WHO staging, TB/HIV-coinfected clients are placed on antiretroviral therapy after the first two months of intensive TB treatment, or as recommended by the physician. Sputum-positive TB clients are hospitalized for two weeks in CBCHB facilities, during which time they receive counseling on how to self-administer medications at home. Coinfected clients return monthly to the centers for refills. Client progress and outcomes are discussed in case conferences held once a week in each facility, attended by both TB and HIV clinic staff.

Between 2009 and 2010, selected indicators were monitored to assess the impact of integration on service delivery. Most notably, there was a nearly 15% increase (from 5,389 to 6,180) in the number of sputum tests performed in the six facilities. Based on these and other positive outcomes, CBCHB is recommending that the Cameroon Ministry of Health replicate this model across the country.

For more information on this program, please contact Elias Onyoh (onyohelias@yahoo.co.uk).

ELIZABETH GLASER
PEDIATRIC AIDS
FOUNDATION
www.pedaids.org

Office Locations

UNITED STATES (HEADQUARTERS)
1140 Connecticut Ave. NW, Suite 200
Washington, DC 20036
202-296-9165

UNITED STATES (LOS ANGELES)
11150 Santa Monica Blvd., Suite 1050
Los Angeles, CA 90025
310-314-1459

CÔTE D'IVOIRE
2 Plateaux les Vallons
Rue J 50
08 BP 2678 Abidjan 08
Côte d'Ivoire
+225 22 41 45 05

DEMOCRATIC REPUBLIC OF CONGO
EGPAF C/O ProVIC
Avenue Mutombo Katshi, No 10-13
Gombe, Kinshasa
Democratic Republic of Congo
+243 (81) 81 42 170

KENYA
Ariel House, Off David Osieli Road
P.O. Box 13612-00800
Nairobi, Kenya
+254 20 44 54 081/2/3

LESOTHO
1st Floor Prosperity House
4 Bowler Road
P.O. Box 0166
Maseru West 105, Lesotho
+266 223 116 62

MALAWI
Green Heritage Building
P.O. Box 2543
Lilongwe, Malawi
+265 1772 052

MOZAMBIQUE
Av. Kwame Kruma N°417
Maputo, Mozambique
+258 21488904

RWANDA
Rue du lac Mpanga N°10
Avenue de Kiyovu
BP 2788 Kigali, Rwanda
+250 252 570583

SOUTH AFRICA
Ground Floor, Block C
Hobart Square, 10 Hobart Road
Bryanston 2128
Johannesburg, South Africa
+27 11 463 6787

SWAZILAND
PO Box A507
Swazi Plaza
Mbabane, Swaziland
+268 404 5748

TANZANIA
PO Box 1628
Dar es Salaam, Tanzania
+255 22 260 1692

UGANDA
PO Box 881
Mbarara, Uganda
+256 485420160

ZAMBIA
Reliance House
Plot No. 35374
Thabo Mbeki Road
Lusaka, Zambia
+260 211 256 481

ZIMBABWE
107 King George Road
Avondale, Harare
Zimbabwe
+263 (0)4 302 144

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