KEY POPULATIONS BRIEF

PEOPLE LIVING WITH HIV

Stop TB Partnership

While HIV-induced immunosuppression makes people living with HIV (PLHIV) extremely vulnerable to TB, stigma, absence of precise point-of-care diagnostics, and poor integration of TB and HIV services make TB particularly deadly for this population. Along with stigma, other factors such as gender, poverty and malnutrition promote delays in diagnosis, present barriers to treatment, and impact patients' adherence to medications. On the policy side, delay in the implementation of WHO recommendations, staff shortages and inefficient distribution of staff, along with poor collaboration between vertical TB and HIV systems, also delay delivery of urgent care to PLHIV with TB. Political will and collaborative efforts involving civil society organizations are an obvious necessity in order to achieve the ambitious goals to end both HIV and TB.

Global Plan to End TB and key populations

The Global Plan to End TB outlines the following targets to be achieved by 2020, or 2025 at the latest. The Plan refers to people who are vulnerable, underserved, or at risk as TB "key populations" and provides models for investment packages that allow different countries to achieve the 90-(90)-90 targets (*1*). The Plan also suggests that all countries:

Reach at least

OF ALL PEOPLE WITH TB
and place all of them on appropriate therapy—first-line, second-line and preventive therapy as required.

As a part of this approach, reach at least

OF THE KEY POPULATIONS
the most vulnerable, underserved, at-risk populations.

Achieve at least

TREATMENT SUCCESS
for all people diagnosed with TB through affordable treatment services, adherence to complete and correct treatment, and social support.

- Identify their key population(s) at national and subnational levels according to estimates of the risks faced, population size, and particular barriers, including human rights and gender-related barriers, to accessing TB care;
- Set an operational target of reaching at least 90% of people in key populations through improved access to services, rights-based systematic screening where required and new case-finding methods, and providing all people in need with effective and affordable treatment. For PLHIV, management of latent TB infection (LTBI) and antiretroviral therapy (ART) are the most effective methods of TB prevention (*2,3*). WHO recommends that PLHIV receive at least 6 months of IPT as a part of their HIV care. Despite this longstanding recommendation, fewer than 25% of PLHIV who are in care receive this treatment (*4*);
- Report on progress with respect to TB using data that are disaggregated by key population, without subjecting the population in question to additional scrutiny, and apply evidence and rights-based interventions that are also gender equitable;
- Ensure the active participation of key populations in all aspects of the design, delivery and evaluation of services, and the provision of TB care in safe and respectful environments

This guide utilizes the above recommendations in order to outline the risks and barriers to access, discuss strategies for improved access, and highlight opportunities for collaborative services to improve programming for PLHIV and to engage affected communities in all stages of programme development, service delivery and evaluation.

What's in this guide?

EPIDEMIOLOGICAL PROFILE

PLHIV constitute the population at the highest risk for TB. Although immunosuppression is responsible for the additional vulnerability of PLHIV to TB, their marginalization puts PLHIV at further risk. Among the 9.8 million new cases of TB in 2014, 1.2 million were among PLHIV. Preventing the reactivation of latent TB infection and ART are among the most important strategies for TB prevention among PLHIV, yet many still lack access to either intervention.

SOCIAL, CULTURAL, AND HUMAN RIGHTS BARRIERS

PLHIV continue to be subjected to some of the highest levels of stigma and severe human rights violations when accessing diagnosis and treatment. In addition, poverty (sometimes associated with loss of income due to illness), lack of access to proper nutrition, and overwhelming pill burdens create issues with adherence and constitute serious barriers for TB treatment among PLHIV.

BARRIERS IN POLICY AND PRACTICE

Lack of integration among HIV and TB services persists in the majority of settings and creates unprecedented delays in diagnosis and treatment initiation. Furthermore, early initiation of ART remains rare and interventions to prevent the reactivation of latent TB infection are lagging. Combined, delays in ART initiation, poor diagnosis, and insufficient coverage with prevention interventions contribute to poor outcomes for PLHIV with TB. In addition, delays have been observed in the adoption of the new policies and guidance driving the best outcomes for PLHIV. The lack of effective tools for diagnosis also remains an issue, and the research and development of such technologies must be scaled up.

TAKING ACTION

Involving PLHIV communities in the design and implementation of care programming, integrating HIV and TB systems, and engaging various stakeholders in the delivery of TB and HIV interventions are crucial to effective service delivery and mortality prevention for PLHIV with TB. In addition, putting a stop to rights violations of particularly vulnerable PLHIV and stemming stigma are imperative for achieving positive outcomes.

RECOMMENDATIONS

Recommendations include the integration of services, development of collaborative activities, engagement of civil society participation, and focus on eradicating stigma. Focus on reform of policies and practices that impact those PLHIV who are the most marginalized is also among the key recommendations.

PLHIV with TB: a population at the highest risk

Stop TB Key Population Guides describe the range of obstacles in accessing quality diagnosis, treatment, and care faced by people with TB. These include suboptimal diagnostic systems, distance travelled to clinics, stigma, fear of job loss, over-reliance on traditional medicine, difficulty managing TB regimens, poor nutrition, criminalization, and many others. For PLHIV with TB, many of the barriers are the same, but the challenges are significantly amplified by the additional stigma and discrimination associated with both HIV and TB, and the need for multiple, well-integrated health and social services.

Stigma is described as a concept that is socially created to alienate already marginalized individuals; it often focuses on socially undesirable traits (5,6). In the context of HIV, stigma focuses on labelling individuals as immoral due to the circumstances through which the disease was supposedly acquired (i.e., through drug use, sexual practices, etc.) (5). In the context of TB, people with TB are variously stigmatized due to beliefs about their infectivity (5). Both diseases might also serve as markers of poverty or belonging to other socially excluded populations. Thus, both HIV and TB exacerbate stigma against groups that are already marginalized – drug users, sex workers, LGBTI people, people residing in poverty, migrants and others.

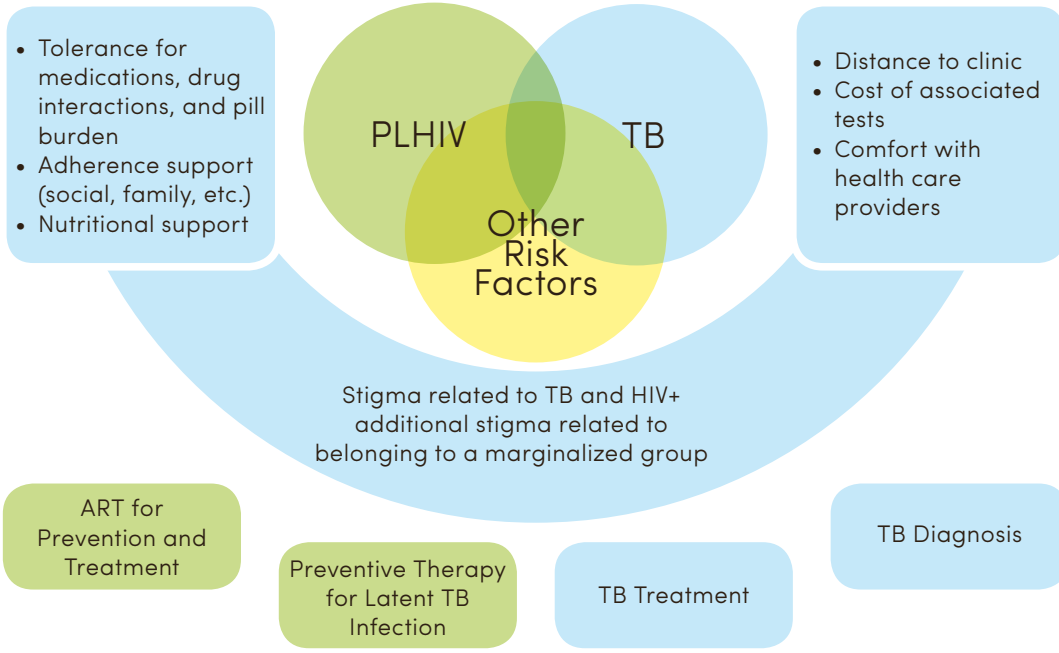
It is important to recognize that many PLHIV are also members of key population groups who encounter the challenges affecting both HIV and TB care described in other Stop TB Key Population Guides. For example, in sub-Saharan Africa, nearly half (45%) of PLHIV reside in poor, urban areas. Elsewhere in the world, in countries such as Brazil, Jamaica and Russian Federation, cities and urban areas are home to more than half of PLHIV nationally (7). People who use drugs account for more than 30% of new HIV infections outside of sub-Saharan Africa, and in some countries represent 67% of all PLHIV (8). In other countries and regions, nearly 60% of PLHIV are women (8). HIV is rampant in mining communities; according to industry reports, many miners who are HIV negative when they start working in the mines acquire HIV within the first 18 months of employment (9). In some settings, service providers have reported that almost 90% of PLHIV population at their clinics are migrants (8). People who are incarcerated experience both HIV and TB at increased rates. HIV- and TB-related stigma often intersects with social inequality, subjecting PLHIV with TB to a greater degree of unfair treatment and discrimination. This same stigma and desire to exclude and ostracize PLHIV and people with TB results in systematic discrimination and human rights violations (8,10–12).

Global studies have reported that one in eight PLHIV face denial of health services based on their HIV status (8), and some reports have indicated that PLHIV are routinely denied life-saving and essential ART, TB medications and care (13–15). Some of this denial is based on PLHIV being identified as belonging to groups such as

people who use drugs, sex workers, and others who might be deemed unable to adhere to medications and be cured (8,11). At least 6% of PLHIV globally have reported experiencing physical violence as a result of their HIV status (8). PLHIV face unemployment rates that are three times greater than national averages, with stigma among the key barriers to obtaining employment (8). Stigma against PLHIV is reflected in discrimination within health and social services, unemployment, violence, and the lack of laws and policies to protect PLHIV from these phenomena. The impacts of stigma and discrimination, and the resulting laws and policies, on the spread of HIV have been well documented (16).

The stigma, discrimination and violence, among other negative outcomes, that PLHIV experience hamper timely access to health services. Denial of care or limiting access to treatment based on HIV or any other status constitutes a gross violation of the individual's right to the highest attainable standard of health. In this guide, the specific challenges faced by PLHIV are addressed; however, other obstacles faced by key populations who might be living with HIV also apply. All of these challenges need to be taken into consideration when designing effective programming to fully address TB among PLHIV, throughout prevention, diagnosis and treatment.

FIGURE 1: **PLHIV AND TB: ADDITIONAL BARRIERS TO DIAGNOSIS, TREATMENT AND CARE**



Epidemiological profile

According to UNAIDS, in 2014 there were 36.9 million PLHIV globally (17). In the same year, there were 9.8 million new cases of TB, with 1.2 million of them estimated to be among PLHIV (18). PLHIV's risk of developing TB is about 30 times greater than for those who do not have HIV (18). TB is the most common condition among PLHIV, including those on ART (19). In 2014, 400 000 people died of HIV-associated TB (20), making TB one of the major causes of death among PLHIV worldwide (19). In addition, one third of the world's population is estimated to be living with latent TB infection (LTBI) (21), and the risk of LTBI progressing to active TB can be up to 50 times greater for PLHIV than for those without HIV, for whom the risk is 5–10% over their lifetime; 5–15% of PLHIV who are also living with LTBI develop active TB yearly in the absence of ART (22,23).

Geographically, the TB burden among communities of PLHIV is unevenly distributed. Of 1.2 million new cases of TB among PLHIV, more than 75% are living in just 10 countries – nine of them in sub-Saharan Africa (8). In addition to the African region, South Asia (India, Thailand, Indonesia and Myanmar) and Eastern Europe (Ukraine and the Russian Federation) – where the coepidemics are concentrated in the communities of people who use drugs – also have large populations of people with TB who are living with HIV (24).

In its 2012 policy "on collaborative TB/HIV activities", WHO outlines 12 interventions that are key to addressing HIV and TB in people who are at risk for or affected by both conditions (25). At the core of these 12 activities are the Three-Is for TB/HIV:

- Intensify TB case-finding and ensure high-quality anti-TB treatment;

- Initiate TB prevention with isoniazid preventive therapy and early ART;
- Ensure infection control of TB in health care facilities and congregate settings.

The other nine interventions address the delivery of TB/HIV integrated services and treatment, and ways to reduce the burden of HIV in people with or at risk for TB (25). These guidelines clearly outline strategies to address TB in PLHIV, stress the use of preventive therapy and early

initiation of ART, and highlight the need for HIV testing and prevention among people with TB as well as their partners and family members – all to prevent TB-associated mortality (24). However, much remains to be done. In PLHIV, ART reduces the risk of developing TB by 66% and the risk of death by 50% (8), making the early initiation of HIV treatment and diagnosis of HIV in people with TB crucial. In 2014, however, only 33% of people with TB who were also HIV positive had been started on ART (26). Also, fewer than 25% of PLHIV who are in care receive IPT (4) to address LTBI and halt its reactivation. Based on the outcomes of large-scale trials, the CDC now recommends a shorter 12-week course of isoniazid and rifapentine in addition to IPT for preventing the reactivation of LTBI for PLHIV who are not on ART (27). In its most recent guidelines on LTBI management, WHO also recommends the short course of isoniazid and rifapentine, but advises that caution be used for PLHIV on ART, since regimens containing rifapentine might cause unsatisfactory drug interactions (3). The shorter course is easier for many individuals to manage. Therefore, these and other current prevention methodologies need to be considered in order to prevent LTBI activation and save lives.

Sociocultural and human rights barriers to treatment

Stigma and discrimination

Despite concerted efforts to eliminate stigma, in almost every setting PLHIV still face multiple levels of stigma and discrimination. Global People Living with HIV Stigma Index studies have reported that one in eight PLHIV face denial of health services, and one in nine denial of employment based on their HIV status (8). PLHIV who belong to additionally marginalized population groups, such as people who use drugs, sex workers, and lesbian, gay, bisexual, transgender and intersex (LGBTI) people, are at a higher risk of stigma and denial of services. These groups are also criminalized in many jurisdictions, which increases their risk of being incarcerated (8). Stigma towards PLHIV has been shown to cause delays in the diagnosis and treatment of HIV (28). The stigma related to TB and HIV overlap: Since TB is often associated with HIV, PLHIV might delay seeking TB diagnosis, fearing that their HIV status might be disclosed because of a positive TB test result (29,30). In a systematic review of 58 studies, stigma and health worker attitudes played a role in delays in TB diagnosis and treatment in multiple locales (31). Stigma from both health workers and the wider community make PLHIV hesitant to initiate treatment and access health services (32–34). The delayed diagnosis of TB in PLHIV remains one of the key causes of high mortality among this population (24). Since the early diagnosis of TB in PLHIV and HIV in people with TB and the immediate initiation of ART and TB treatment are crucial to improving survival and health outcomes, any delays in diagnosing TB can be detrimental to survival.

As highlighted earlier in this document, patients are still denied ART medication and TB treatment and care based on representing a particular population group and/or their perceived curability and ability to adhere to medications (35,36). Such practices constitute a gross violation of human rights and should be immediately stopped.

Poverty and the financial burden of TB and HIV

The link between TB and poverty has been well established (37,38). HIV has also been shown to bring devastation to communities, pushing them further into impoverishment (39). While in many countries the medications to treat both TB and HIV are provided free of charge, there are multiple other direct and indirect costs incurred by PLHIV with TB. The full price of TB and HIV care might include the cost of CD4 count testing, as well as the cost of transportation for multiple trips to obtain a proper TB diagnosis and HIV and TB medication (with the price doubling if a patient needs to be accompanied) (34,40–42). In one study, PLHIV with TB reported spending up to US$ 4 on CD4 testing and US$ 1 on transportation to ART initiation clinics (43). In another study, the costs of travel to district clinics and hospitals were between US$ 3 and US$ 7.5, constituting a significant portion of what a family would spend on food or other necessities (34). In some cases, individuals might not be aware that the treatment is free and so seek services outside of the formal health system (30,42,44), to which they are also sometimes driven by stigma. Many PLHIV have reported lack of financial resources as one of the key reasons for their reduced adherence to treatment. Burdened by the financial hardships of travel and maintenance of care for both conditions, in addition to childcare, work and other responsibilities they might have, they often interrupt one or both of their regimens (32,33,45).

Nutrition

PLHIV are at risk for nutrition deficiency at all stages of HIV disease progression (46); moreover, malnutrition poses a risk to PLHIV starting ART, as it facilitates poor outcomes and early mortality (47). PLHIV with TB are at particularly great risk for malnutrition (48), which in turn poses a risk of early death to people starting on TB treatment (49). Several studies have found that PLHIV with TB starting on TB treatment and initiating ART cited hunger and the inability to take medication on an empty stomach; in addition, they also demonstrated altered food purchasing patterns in order to support their medication intake (33,34). Nutritional needs place an additional financial burden on families of PLHIV with TB, while lack of proper nutrition can cause treatment interruptions and drop-out.

Challenges to adherence

Along with access to nutrition and financial considerations, several other key factors play a role in treatment adherence among PLHIV. Many PLHIV with TB have significant concerns about the tremendous pill burden, fears about taking too many medications, and difficulties navigating when to take what regimens (32,33,43,45,50). Another important factor is the belief about which disease is more deadly or about the curability of TB, according to which some PLHIV might get discouraged, while some people with TB who get diagnosed with HIV might feel overwhelmed by the need to address both conditions simultaneously (31,33). Perceptions vary: Some people with TB might tolerate ART better, but be hesitant to take TB medications that make them sick; others might consider TB a more immediate and deadly danger, and abandon their ART regimens in favour of TB treatment (33,51). Given these challenges, patient education, social support, knowledgeable and supportive health staff, and the opportunity to observe peers progress in their treatment might be crucial to adherence. However, in many rural locales, high levels of staff absenteeism and turnover may impact adherence among PLHIV, since patients are unable to establish trust with providers (32). In addition, reviews of multiple studies have shown that the practice of directly observed treatment, for which individuals have to return to the clinic, is considered humiliating and frustrating and an interruption to daily activities, including jobs (31). These challenges are amplified for PLHIV who use drugs or alcohol, and/or who are socially or otherwise disadvantaged. Consequently, targeted approaches to adherence need to be developed for specific populations of PLHIV.

Additional barriers for women

In countries with pooled HIV prevalence above 1%, relatively more women living with HIV have been diagnosed with TB than men (2). Active TB has also been diagnosed at rates up to 10 times higher in pregnant women living with HIV than in women without HIV infection (52). In countries of sub-Saharan Africa, women are more likely to be living with HIV than men, and women who died from TB in 2012 were twice as likely to be HIV-infected as men who died from TB (22). While access to TB services might be difficult for everyone, women in many countries may face further challenges due to harmful gender norms, additional stigma, and fear of being ostracized by families and losing ownership of property, among others. Accordingly, TB/HIV collaborative activities must demonstrate a level of gender sensitivity in a given locale in order to make programming accessible to women.

Barriers in policy and practice

Persistent lack of service integration and the resulting reliance on care outside the health system

Addressing TB in communities of PLHIV requires solid coordination and collaboration of all HIV and TB stakeholders, including policy makers, health service providers, and organizations of PLHIV and of people with TB. HIV and TB services have traditionally been disconnected and isolated; despite longstanding calls for integration, there is still little coordination of HIV and TB services for individual patients. Distance to services poses a serious barrier to accessing both HIV and TB services. Furthermore, transportation and other costs multiply if an individual has to make multiple trips to different clinics to obtain medication or treatment. In the presence of another comorbidity such as substance use or hepatitis, or a condition such as pregnancy, the need for integrated services is even more critical.

The integration of HIV and TB services starts with good policies, which are still lacking in many countries. In addition, concerted political will and multisectoral collaboration are needed. Various challenges persist across settings. For example, in some locales, facilities where HIV care is delivered cannot initiate clients on TB treatment (53) and/or lack the diagnostic equipment needed to quickly test and diagnose TB in PLHIV (50). The opposite is also true, with sites designated for TB diagnosis and treatment unable to prescribe ART; instead, they refer clients to HIV clinics. Referral between services can result in dramatic delays in the initiation of life-saving treatment. One study found that PLHIV referred from separate TB clinics had the longest delays in obtaining ART; as a result, only 11% of the PLHIV with TB with CD4 cell counts below 50 cells/μL started ART within 4 weeks of receiving their TB diagnosis (54).

Colocation of services has been suggested as the ultimate solution to integrating TB/HIV service provision. However, such colocation lacks purpose if not accompanied by cohesion among the health staff delivering care; it is less about the physical location of services and more about providers working together to deliver the intervention that best suits the needs of the individual (55). Examples of effective integration strategies exist and need to be further promoted. In addition, such collaboration and client-focused services can be delivered in teams with community organizations. For further collaboration and cohesion, "task shifting" – i.e., ensuring that nurses and health workers other than TB and HIV doctors can initiate treatment regimens and make decisions and referrals – has already occurred in HIV services to some extent (56). For TB systems, such a strategy has been implemented only in some countries and needs to be further explored (53).

It has been reported that within health systems, at the level of local clinics and primary care, health staff are poorly prepared to address TB in some locales; as a result, PLHIV with TB turn to private practice or traditional healers (31). One review noted this vicious and harmful cycle of incorrect, improper or missed diagnoses, and patients being bounced from provider to provider (30). Evidence has also pointed to patients' tendency to turn to traditional healers, and to self-medicate with herbal supplements or with medications obtained from pharmacists with no formal medical training (30,31). In the era of increasing multidrug-resistant TB (MDR-TB), such alternative treatment regimens can be deadly.

Failure of early initiation of ART therapy

For PLHIV, TB care should start with prevention. The early initiation of ART is the most effective method for preventing TB among PLHIV and reducing the mortality of PLHIV from MDR-TB. Research on the effectiveness of ART in a cohort of PLHIV in a high-burden setting in South Africa demonstrated a significant protective effect, with an approximately 80% TB risk reduction among PLHIV with a range of CD4 counts (57). Other studies have demonstrated that when ART coverage reaches a high level in a population, TB notification rates decrease in that population (58,59). In one setting, both new and recurrent cases of TB were reduced (58). ART has also been shown to save lives by having a protective effect against mortality among PLHIV with both drug-susceptible and drug-resistant TB (60) and by playing a role in curbing TB recurrence (61). Mathematical modelling has also suggested that initiating ART early in the course of HIV and utilizing the "test and treat" approach could have a tremendous impact on TB control in communities of PLHIV; modelling has further indicated that if used universally in settings such as South Africa, ART could cut the number of TB cases among PLHIV in half within five years and reduce them by 95% within 40 years (62). ART works both to protect PLHIV from TB and to reduce HIV transmission in the community. In addition, considering that extrapulmonary TB affects PLHIV at an increased rate and is more difficult to diagnose compared to those who do not have HIV, the early initiation of ART prevents excessive immunosuppression that might lead to extrapulmonary TB (63,64).

There are many reasons as to why ART is not initiated early for PLHIV, some of which are the result of poor policies and practice, and some of which are a consequence of stigma and discrimination against the groups that PLHIV represent. For example, in some countries people who use drugs constitute 67% of all PLHIV, but only 25% of those receiving ART (11,65). Globally, only 38% of adults and 24% of children living with HIV have access to treatment (8).

WHO recommends prescribing ART to "all people with TB who are living with HIV at any CD4 cell count" (66), indicating that all PLHIV who are not initiated on ART at the time of HIV diagnosis should begin ART when TB is diagnosed. Despite this recommendation, 23% of PLHIV with TB still do not receive ART, with this number ranging dramatically by region – from 15% in South East Asia to 45% in the WHO European region (26). PLHIV not on ART and diagnosed with TB should begin TB treatment first and receive ART within the first 2 weeks of anti-TB treatment if their CD4 count is below 50 cells/μL (67,68). For those with higher CD4 counts, research findings strongly indicate that better treatment outcomes can be achieved if ART is started as early as possible in the course of TB treatment (67), and WHO recommends ART initiation no later than the first 8 weeks of TB treatment (68).

Failure to deliver prevention interventions

IPT for PLHIV is key to WHO's Three-Is strategy; given daily for 6 months, IPT reduces the overall risk of TB in PLHIV by 33% and provides a protective effect for those with a positive tuberculin skin test (TST), for whom the risk reduction is 64% (69). Despite a longstanding WHO recommendation, fewer than 25% of PLHIV who are in care are receiving IPT (4), and in 2014, only 23% of countries globally were providing IPT (26). Only 933 000 PLHIV received IPT in 2014, 59% of whom were in South Africa (26). In resource-limited settings, obtaining a TST is often a barrier; as such, the most recent WHO guidelines have removed the requirement that PLHIV obtain a TST before commencing IPT (2). Concerns that IPT use could increase resistance to isoniazid have also been cited; however, studies have demonstrated that those who have undergone IPT and developed TB later do not have higher rates of drug resistance (4,70,71). Nevertheless, along with ruling out active TB, increased drug resistance remains a key concern among providers (72,73).

Recent studies have demonstrated that a longer 36-month course of IPT might be more beneficial in settings with high TB transmission (2,74). Some research has even pointed in the direction of lifelong IPT for PLHIV (24). Still, issues such as treatment adherence over longer periods of time, lack of coordination between HIV and TB services to initiate IPT, lack of policies instructing IPT use at national level, and provider confusion and hesitation over implementation present major barriers to IPT scale-up (72). In addition to the proven protective benefits of prevention interventions, studies have also underlined their cost–effectiveness (75,76) in terms of both medical care and social costs – a factor that should be underlined in advocacy. On the part of PLHIV, IPT is difficult to adhere to: Since the threat of TB is not apparent, the regular intake of a medication for a prolonged period of time might seem excessive. Nevertheless, there have been multiple examples of the successful implementation of prevention interventions, with adherence supported by both PLHIV and providers (50).

To increase adherence in settings where long courses of IPT might be challenging for PLHIV, several trials have also confirmed the effectiveness of a 12-week course of a once-weekly isoniazid and rifapentine dose (77,78). This shorter regimen has been shown to be as effective as the longer regimens for treatment of LTBI, and is currently recommended by the CDC in the U.S. for PLHIV who are not on ART (27). WHO also recommends this regimen, but advises caution when using it in conjunction with ART (3). WHO is currently looking into how implementation of this effective regimen can be scaled up in other settings.

Delays in diagnosis and lack of standardized screening procedures

Multiple studies conducted before and during ART have found undiagnosed TB to be a cause of death for 40–50% of hospitalized PLHIV. These results indicate a clear need for the better and faster diagnosis of TB among this population (79–81). The introduction of ART might simplify the diagnosis of TB. For example, a South African study found that PLHIV on ART were 51% less likely to encounter TB diagnosis delays than PLHIV who were not receiving ART (82). This discrepancy is likely due to the fact that ART helps to unmask subclinical TB and makes TB easier to identify and diagnose in PLHIV (83). However, it should be noted that this unmasking might occur when HIV has already progressed sufficiently enough to complicate treatment of both conditions. Diagnosis of TB in PLHIV is hindered by immunosuppression, which can render chest radiographs and sputum smears incapable of identifying lung abnormalities or TB bacilli (84). Sputum smear microscopy identifies less than 50% of active TB cases in PLHIV, and culture (the golden standard in TB diagnostics) requires sophisticated lab networks, which can delay results by several weeks (85). Moreover, the facilities required for culturing are absent in many resource-poor settings. Thus, these two methods are suboptimal for PLHIV in general.

For fast, point-of-care testing for PLHIV, WHO has recommended the use of Xpert MTB/RIF since 2010 (24). In 2013, WHO produced an updated policy that specifically recommends Xpert MTB/RIF as an initial diagnostic tool for PLHIV (86). Xpert MTB/RIF is a rapid, automated test that is also able to determine rifampicin resistance. For samples with a low count of TB bacilli, with which PLHIV often present, the test might require an additional number of specimens to increase precision (87). Still, Xpert

MTB/RIF can identify active TB in smear-negative PLHIV in over 70% of cases and has shown promise in identifying extrapulmonary TB (87). In addition, Xpert MTB/RIF allows for the decentralization of diagnostic services; instead of having to send cultures to the main lab, testing can be performed using devices at the district level, in HIV clinics, etc. However, implementation of the new testing systems has been expensive and slow, and countries continue to struggle with the local implementation and maintenance of Xpert MTB/RIF devices (53). This needs to change in order to achieve faster and more accurate diagnosis among PLHIV.

Due to immunosuppression, fewer organisms that can be detected by a microscope are released into the sputum of PLHIV (88). Thus, sputum samples, which have been the foundation of TB diagnostics for decades, are often difficult to produce for PLHIV and also require a system for infection control on the part of facilities and individuals conducting the testing. Therefore, a test that is capable of using other types of samples is desirable. Although there had been high hopes for the new urine lipoarabinomannan (LAM) test – a test that searches for a concentration of components of TB bacilli in urine – these were recently deflated. In a review, a WHO expert panel rendered the test effective for use only in hospitalized and seriously ill PLHIV with CD4 counts below 100 cells/μL; in studies, the test demonstrated greater sensitivity only with lower CD4 counts and specificity similar to sputum smear microscopy (89). This underscores the need to develop easy-to-use, point-of-care diagnostics that can easily be adopted for PLHIV.

Prior to diagnosis, clinical and non-clinical staff can use a simple screening test to determine whether PLHIV may have active TB. Such screening has to be done regularly in order to be effective and to fulfill WHO recommendations on intensified case-finding. Although this may be challenging for already overburdened HIV systems, the involvement of civil society can aid in establishing faster linkages to care if proper guidance is utilized (24,90). In addition, HIV and TB share similar symptoms, such as fever, weight loss and night sweats, and in some at-risk populations, the cough can be suppressed. A questionnaire that was developed (91) and tested in resource-depleted settings (50) has been effective in increasing case-finding and could potentially be implemented through collaborative projects.

A WHO-recommended tool simplifies screening even further. Suspicion of TB is defined by the presence of any one of the following symptoms:

- For adults and adolescents living with HIV: current cough, fever, weight loss or night sweats;
- For children living with HIV: poor weight gain, fever, current cough or history of contact with a TB case (68).

While diagnosis of TB in PLHIV is relatively complex, HIV is somewhat easier to identify in people with TB with the use of rapid and other tests. Even though diagnostic efforts are expanding, only 51% of people with TB globally had a documented HIV test result in 2014 (26).

Taking action

Multidisciplinary teams and task shifting in the delivery of HIV and TB treatment and care

Evidence from Brazil (92) and other locales (93) has demonstrated that engaging multidisciplinary teams in the provision of health services to PLHIV with TB can eliminate diagnostic and treatment delays for TB and deliver improved health outcomes. At the same time, task-shifting practices that allow nurses and other trained health staff to initiate both HIV and TB treatment (thereby leaving more complex cases for busy, difficult to access doctors) have also been found to be effective in some settings (50,93). Decentralizing HIV and TB services and ensuring that they can be accessed at the primary health care facility level is also important, as it allows for rapid and effective access to essential care in the community (24,50). Engaging community health workers and NGOs in the work of multidisciplinary teams and in supporting overburdened health clinics is key to eliminating stigma and providing access to individuals who otherwise might be considered difficult to reach by health systems. The significant trust and respect for traditional healers in many locales should be taken into consideration when devising these interventions.

Engaging civil society in collaborative TB/HIV activities

In addition to the collaboration of multidisciplinary teams, it is crucial to engage and finance civil society in collaborative TB/HIV activities. Civil society organizations can influence community engagement, promote advocacy, strengthen political will, and otherwise support government interventions and affected individuals (94). While communities of PLHIV are well developed in many locales, communities of people with TB are just starting to gain attention and thus need support. This presents plenty of opportunity for joint work and collaboration.

Sensitivity, education, and anti-stigma training for health workers

Considering the stigma of both HIV and TB and reports of individuals feeling stigmatized in health care systems, it is vital to include TB and HIV in educational programmes for health staff at all levels, including primary care. Throughout health systems, workers should be able to recognize symptoms of TB, be nonjudgmental in providing referrals and services, and understand the urgency of providing care. In addition, professionals operating pharmacies should be educated on the risks of drug resistance and be advised not to sell certain medications without a prescription. Training should also include private-sector health service providers and traditional healers.

Bringing care to communities

It is clear that for PLHIV with TB the burden and complexities of navigating health care can be extremely overwhelming. Encouraging mobile outreach to communities and organizing care in such a way that it is easily accessible is key for this population. Interventions that bring sputum collection into communities via mobile vans and access points, and that encourage community members to get tested regularly for both TB and HIV, while eliminating stigma through mutual support and dialogue, have had beneficial impacts (95,96).

Peer and family support

It has been shown that the encouragement and support of family members can be influential in medication adherence for TB and HIV (97,98). Availability of support and personal experience with TB/HIV serves as encouragement to others (43). Since PLHIV are at a higher risk for TB, peer engagement needs to occur with due consideration for infection control, but can be crucial to helping maintain individuals on tough regimens.

Stopping rights violations and ensuring equal access to treatment for all

Access to quality diagnostics and treatment for both TB and HIV is essential for stopping the two diseases. Ensuring that no one is ever denied treatment based on their HIV status or being a member of a particularly marginalized population group is the responsibility of all national stakeholders. Civil society organizations can ensure that such violations do not occur by conducting rigorous monitoring of services and by advocating for access to advanced diagnostic and treatment modalities. In turn, donors and national stakeholders can support civil society organizations that work with key populations and engage peer educators and peer treatment adherence counsellors.

Recommendations

While these recommendations provide an outline for action for a range of key stakeholders, others, including UN Agencies and local and global health worker collectives, should take note and assess their potential for use in improving TB prevention, treatment and care for PLHIV.

For Civil Society	For PLHIV Networks	For Governments	For Donors
• Work to reduce stigma against HIV and TB in communities; • Support communities of PLHIV in documenting cases of rights violations in health care settings;	• Speak out against stigma and collaborate with government stakeholders on stigma reduction activities; • Document cases of rights violations in health care settings;	• Include sensitization and stigma reduction activities in training for health workers at all levels; • Devise systems for prosecuting those who violate anti-discrimination laws and confidentiality and privacy laws;	• Support targeted activities for stigma reduction and activities that help document rights violations of PLHIV and people with TB;
• Advocate for and support PLHIV community participation in decision making with regard to TB programming;	• Ensure and advocate for the participation of PLHIV community representatives in local processes that impact TB programming;	• Ensure that representatives of PLHIV communities are involved in the planning and design of national TB programming;	• Support the empowerment of PLHIV with TB and the participation of PLHIV in TB programme planning and design;
• Advocate for the use of WHO guidance in devising policies related to PLHIV and people with TB;	• Demand the highest level of care that aligns with WHO recommendations;	• Adopt WHO recommendations on using innovative technologies for diagnosis and early ART initiation for PLHIV with TB;	• Promote WHO guidelines and support pilot and expansion programmes that utilize them;

For Civil Society	For PLHIV Networks	For Governments	For Donors
• Advocate for collaborative activities between TB and HIV systems; • Work to educate traditional healers, pharmacists and other informal health workers about TB and HIV;	• Advocate for the colocation and integration of HIV and TB services, and work with health workers to devise innovative ways that best fit the needs of PLHIV communities, such as integration of services, engagement of traditional healers, peer networks and others;	• Commit to the colocation and integration of TB and HIV services, and work with communities and PLHIV organizations to develop strategies and approaches that work best for service delivery, such as multidisciplinary teams and others; • Ensure that all health staff, including those in primary care, are trained in the basics of HIV and TB; • Work with traditional healers, pharmacists and other informal health services providers to build capacity for support of PLHIV with TB; • Ensure that communities of PLHIV/people with TB are involved in service delivery;	• Support and promote innovative programming that integrates HIV and TB service delivery, especially if it includes civil society participation;
• Research and advocate for the most up-to-date treatment regimens and diagnostic tools; • Advocate for better patent laws and price reductions for TB and ART drugs;	• Advocate for patent law reforms and reduction in pricing on ART and TB drugs, as well as the use of compulsory licensing schemes and expanded access/ compassionate use of new drugs;	• Revise patent laws and issue compulsory licensing for medications in highest demand for the treatment of TB and HIV; • Ensure nationwide access to the most recent diagnostic tools;	• Support community education on patent law and medication access, and support community advocacy for expanding access to medications;
• Work towards eliminating harmful gender norms and stigma that impact PLHIV belonging to other key populations; • Work to reform laws that impact women and PLHIV that belong to other key populations.	• Recognize the needs of women and the most vulnerable communities of PLHIV, and advocate for their needs; • Advocate to reform laws, such as criminalization of drug use, that impact PHIV who belong to other key populations.	• Develop all policies relevant to PLHIV with TB while recognizing the most affected populations and women; • Revise laws that impact populations vulnerable to both HIV and TB.	• Support programmes that serve women and the most vulnerable groups of PLHIV with TB; • Support initiatives that decriminalize drug use and same sex behaviour, and contribute to the reform of other harmful legal practices.

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Acknowledgements

The Stop TB Partnership acknowledges with gratitude everyone's contribution. We thank each of them for their enthusiastic feedback and support and we hope to implement this together.

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The Stop TB Partnership
acknowledges with gratitude the financial
and technical support received from
the Global Fund to Fight AIDS, TB & Malaria.

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