ACTIVE TB CASE FINDING THROUGH HIV TESTING AND COUNSELING CENTERS IN ZIMBABWE

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INTRODUCTION

Zimbabwe is ranked 17th among the 22 high burden TB countries (HBC) in the world and has the second highest TB mortality rate in the world. Tuberculosis is one of the top 10 causes of infant and maternal mortality, and top five causes of death in children 1 – 4 years old (Zimbabwe National Health Profile, 2008). In 2008 pulmonary tuberculosis was the leading cause of death in the age group 5 years and above and the second most common cause of death in hospitals in all ages, after acute respiratory infection (National Health Profile). The crude death rate is 20 per 1000 and is mainly attributed to the high co-morbidity with HIV.

The single most significant contributing factor to the TB epidemic is the HIV and AIDS epidemic. In the 1980s, tuberculosis notifications had declined to such a level that TB had ceased to be a public health problem. The rise in HIV and AIDS cases preceded the rise in TB cases by about 6 years. TB remains the commonest cause of death among people living with HIV and AIDS (PLWHA). Although the HIV prevalence has declined from a high of 24.6% in 2003 to 13.7% in 2009, HIV continues to fuel the TB epidemic. According to the 2009 TB cohort analysis (WHO Global Report 2010), the proportion of all TB patients tested for HIV was 61% of whom 78% were HIV-infected. The proportion of HIV-positive TB patients on Cotrimoxazole prophylaxis is 79%, the proportion of HIV-positive TB patients on ART is 31%. Data is now easily available following the revision of the TB M&E tools to capture information on HIV.

The 2010 WHO Global TB Report indicates that in 2009 the country had an estimated incidence of 96,000 of all forms of TB (incident rate of 765/100,000 and case-detection rate of 46%). Using these estimates, the burden of all forms of TB disease has more than doubled from 329 cases/100,000 population in 1990. The WHO, as of 2010, no longer reports estimates of new smear positive TB cases which were last reported in the 2009 Global report. 40,000 new smear positive cases were estimated for 2007 in Zimbabwe (298/100,000 and case detection rate of 27% in 2007).

As one of the 22 high-burden countries, the Zimbabwe Stop TB Strategy aims to detect and treat sputum smear positive cases, by providing comprehensive geographic coverage of DOTS. Only two regimens are used for treating TB (WHO category 1 and 2). Fixed-dose combination

tablets (FDCs) were introduced in 2007. Direct observation of treatment, although strongly recommended, is only practiced in very few settings. Although treatment of MDR/XDR-TBXDR-TB is addressed in the NTP Manual (2007) and a clear policy for management exists, very few cases are currently receiving treatment for MDR tuberculosis in Zimbabwe.

The HIV epidemic has caused a dramatic increase in TB incidence starting in the early 90's. The TB control strategy recommends that all TB patients be offered HIV counseling and testing with referral to HIV services and provision of ART as appropriate. Screening of HIV infected individuals for TB and use of prophylactic Cotrimoxazole is recommended in co-infected persons. IPT is not currently recommended due to constraints in TB diagnostics; however, the strategic plan suggests piloting this initiative when resources are available. Culture is not utilized to test smear-negative HIV-infected suspects. Currently, clinical algorithms are utilized to diagnose and treat smear-negative TB cases among HIV-infected persons. Although the TB and HIV units are co-located in the MoHCW, further strengthening of collaborative activities is required.

Population Services International, Zimbabwe (PSI/Z) operates a network of HIV Testing and Counseling centers branded *New Start*. Since their establishment in 1999, the centres have tested almost 3 million Zimbabweans, with a current HIV prevalence on about 12%. Starting 2004, and acknowledging the relationship between TB and HIV, PSI/Z introduced TB symptom screening in all its centers for all clients regardless of HIV status. Presumptive TB cases were referred to Public treatment facilities for diagnosis and treatment. Active follow-up of referrals was conducted.

In 2010, a snap survey of clients referred to a major referral center in Harare reveled the following information for 9,400 referred cases:

- Only 55% of the clients arrived at the referral center
- About 27% of the successful referrals were confirmed as TB cases and were started on treatment
- 23% of the TB cases were smear positive.

These findings revealed that while screening efforts at the HTC centers were yielding TB cases, there were missed opportunities because almost half of the referred presumptive TB cases were lost during referral. To tackle this, TB diagnostic services were supposed to be introduced within the HTC site. Because the majority of TB cases were found among HIV positive cases, ones that were likely to be smear negative because of reduced immunity, the newly introduced Polymerase Chain Reaction GeneXpert test had to be introduced to increase sensitivity of the TB testing services in this population.

Community awareness and participation in treatment programmes (CBTC) is recognized as an important part of the national TB strategy and PSI/Z has successfully developed and implemented a national TB/HIV campaign including Mass Media as well as interpersonal communications activities. Nevertheless, information on TB, especially TB and HIV co-infection is still lacking in most communities and TB patients often present very late for diagnosis.

Participation of the private sector is limited to provision of DSM. NTP acknowledges that the private sector is an untapped resource that could provide a much greater contribution to the TB control in Zimbabwe.

METHOD

The intensified TB case finding was implemented in the major urban areas and peri-urban areas of Harare, Bulawayo, Chitungwiza, Mutare and Masvingo. In these urban areas health services are provided by several city health clinics, which are operating under the local government. The city health clinics assist in the identification and referral of TB suspects to TB diagnostic centers, supervision and observation of treatment and follow-up of contacts and defaulters.

TB diagnostic laboratory services, using smear microscopy and chest X-Ray are available in all 5 urban areas. Nevertheless, access to TB diagnostic laboratory services is not uniform for all groups of the population, especially for those in the peri-urban areas, due to transport challenges, long distances and long waiting times at the clinics to access the services. The diagnostic services are often hampered by the availability of reagents and the lack of laboratory scientists to conduct smear microscopy. Overall, at this time, an estimated 30% of suspects are not offered smear microscopy for diagnosis in Zimbabwe.

All individuals accessing *New Start* HTC services were screened for TB symptoms using a standard questionnaire. Anyone with clinical symptoms of TB was asked to submit 2 sputum specimens, at least one hour apart. This was done to reduce the likelihood of clients submitting just one sample for diagnosis. LED fluorescence microscopy was used to test submitted specimens. Further, smear negative samples from HIV positive individuals were tested on the GeneXpert TB diagnostic platform.

TB awareness sessions were also conducted in the communities, targeting high-density areas, where people are likely to be poor and coinfected with TB and HIV. Awareness sessions covered topics like TB symptoms, how to prevent the spread of TB, what diagnostic services are available in the neighborhood how treatment is treated. Attendees with TB symptoms were also invited to submit sputum specimens for laboratory testing at the static site. Results were returned to the clients the following day.

TB outreach services were conducted in different settings, where the Most at risk populations are found. These included prisons, mines, returned migrants, sex workers and internally displaced communities. TB case finding was also done in the generally community as part of the HTC outreach services.

Because there are many diagnostic sites that have limited capacity and are unable to test all submitted samples, PSI allowed them to submit some samples for testing. The majority of such samples came from City Health Clinics in Bulawayo. After testing, results were returned to the referring clinic. Clinic staff was responsible for informing clients of their results and ensuring that they are started on treatment.

The NTP monitoring and Evaluation tools were used for the whole program. This made it easy for the program toprovide progress reports to the NTP. In addition, program specific data reporting tools, allowing the disaggregation of clients by risk profile were developed and used.

The laboratory quality assurance system consisted of internal and external elements. The National TB Reference Laboratory visited the sites quarterly to perform blinded rechecking of the testing conducted. The Zimbabwe National Quality Assurance Programme (ZINQAP) distributed 10 blinded sputum microscopy slide panels quarterly. Testing known smear positive and smear negative cases with every batch to be stained was done, as part of internal quality control.

Patients identified as TB cases were referred for treatment at public clinics and hospitals, because TB treatment is controlled in Zimbabwe. Efforts were made to ensure that these clients reach the treatment center and are started on treatment. Follow-up of clients sometimes included home visits, when they didn't return to pick their results and referral slips.

RESULTS

Between October 2011 and March 2013, a total of 242,239 individuals were screened for TB symptoms. A further 4,816 suspects were referred from different institutions that required assistance with laboratory testing. A total of 15,701 suspects were tested for TB using either smear microscopy or GeneXpert, yielding 1,390 bacteriologically confirmed TB cases. About 90% of the TB cases were successfully started on treatment within 5 days of diagnosis. Table 1 below gives the detailed description of the results.

Table1: Summary of Outputs by Process Indicator

	Process Indicators	**Totals**	**Proportions**	**NNS***
TB Case Finding: Community mobile outreach	Total screened for TB symptoms (urban & peri-urban areas)	**104,754**		**888**
	Total suspects identified (urban & peri-urban areas)	**4,587**	**4%**	
	Total TB cases (SM+ and/or GeneXpert+) confirmed (urban & peri-urban areas)	**118**	**0.1%**	
TB Case Finding: HTC Static	Total screened for TB symptoms (Static site)	**133,446**		**224**
	Total suspects identified (Static site)	**5,535**	**4%**	

Sites	Total TB cases (SM+ and/or GeneXpert+) confirmed (Static site)	**596**	**0.4%**	
TB Case Finding: MARPS	Total screened for TB symptoms through HTC mobile teams	**4,039**		**101**
	Total suspects identified through HTC mobile teams	**763**	**19%**	
	Total TB cases (SM+ and/or GeneXpert+) confirmed through HTC mobile teams	**40**	**1%**	
TB Case Finding: Among Referrals	Number of suspects referred from other facilities	**4,816**		
	Number of TB cases (SM+ and/or GeneXpert+) confirmed from referrals	**636**	**13%**	
Totals	Number of Suspects identified, all interventions	**15,701**		
	Number of TB cases (SM+ and/or GeneXpert+) confirmed	**1,390**	**9%**	

*NNS: number needed to screen, refers to the number of individuals screened for every TB case identified.

CONCLUSION

It is both feasible and beneficial to integrate HIV testing and TB laboratory diagnosis within client initiated HIV testing and Counseling centers. For community TB case finding to be effective however, careful targeting is required. The number needed to screen in the general community was 8 times more than that of the mobile and vulnerable population groups. Coupled with the fact that substantially more resources are needed to conduct TB case finding in the community compared to the most at risk populations, emphasis should be placed on the later populations. The number needed to screen at HTC centers to identify one TB case was double that of the most at risk population. This is very reasonable, considering that the TB diagnostic services will be riding on already existing infrastructure.