



# **National TB/HIV Sentinel Surveillance**

One year Report  
(July 2011 - June 2012)

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Ethiopian Health and Nutrition Research Institute (EHNRI)/ Ministry of Health  
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## Acronyms and Abbreviations

AFGH	-	Armed Force General Hospital
ART	-	Antiretroviral Therapy
CD4	-	Cluster of differentiation 4
CDC	-	Centre for Diseases Control
CPT	-	Cotrimoxazole Prophylaxis Treatment
DNA	-	Deoxyribonucleic Acid
DOTS	-	Directly Observed Therapy Short course
EHNRI	-	Ethiopian Health and Nutrition Research Institute
FMOH	-	Federal Ministry of Health
HIV/TB	-	Human Immunodeficiency Virus/Tuberculosis
HIV-1	-	Human Immunodeficiency Virus type 1
HMIS	-	Health Management Information System
IPT	-	Isoniazid Preventive Therapy
IRB	-	Institutional Review Board
MOH	-	Ministry of Health
PCR	-	Polymerase Chain Reaction
PEPFAR	-	the U.S. President's Emergency Plan for AIDS Relief
PH	-	Police Hospital
PICT	-	Provided HIV counselling and Testing
SERC	-	Scientific and Ethical Review Committee
TB	-	Tuberculosis
WHO	-	World Health Organization

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## **Background**

In high HIV prevalent countries, HIV related TB continues to be increasing even in well established TB program. This implies that asserting a very good TB program with effective implementation of DOTS would not be sufficient to control TB (1).

As the HIV/AIDS and TB epidemics have progressed, surveillance has become widely recognized as a critical activity in understanding the trends of the epidemics and in enabling sound strategies to be developed for responding to both. The importance of HIV surveillance in TB patients would be to provide comprehensive HIV care, treatment and support (2).

Developing a national TB/HIV surveillance system would help as an entry point for scaling up collaborative TB/HIV activities. HIV surveillance among TB patients will focus on promoting a high uptake of routine diagnostic HIV testing in the TB care setting, linked to a package of care for TB patients who are found to be HIV positive. The HIV and TB data generated by this approach will be used for improvement of TB/HIV program and the TB program at large. .

Surveillance of HIV among TB patients is increasingly seen as important, as the HIV epidemic has continued to fuel the TB disease and as new solutions have emerged to tackle this developing situation.

The Ethiopian Federal Ministry of Health has started the implementation of a new Health management information system (HMIS) throughout the country. In this new HMIS, all Health Centers and Hospitals providing both TB and HIV/AIDS Services in the country are expected to report nationally only the two key TB/HIV indicators (proportion of HIV screened TB patients and HIV positive TB patients). The number of indicators is limited to two, to simplify the reporting and minimize workload on the health care professionals. The national TB/HIV implementation guideline (2008) published by the MOH, recommends that information on the remaining five TB/HIV indicators could be captured by initiating TB/HIV surveillance system. Therefore these sentinel TB/HIV surveillance will be compiling and disseminating information on all the seven core indicators and avail more information on TB/HIV co-infection for better



program planning and decision making. This will be realized by analyzing data from the routine unit TB and Pre-ART registers available at the sentinel facilities in the country.

## **Objectives**

### **General**

To strengthen the National TB/HIV integrated interventions by analyzing and disseminating dynamic information on the core TB/HIV collaborative activity indicators from routine health service data in the health facilities.

### **Specific**

- To increase political, professional and public awareness on the TB/HIV co-epidemic.
- To provide information for effective TB/HIV program planning including the quantification of the need for ART, Opportunistic Infection drugs and other supplies to TB/HIV co-infected patients.
- To monitor the burden of the HIV epidemic among TB patients and vice versa.
- To monitor and assess the effectiveness of joint strategies aimed at reducing the TB/HIV burden.
- To follow up trends of the TB/HIV co infection over time

## Methodology

### Surveillance sites

For this year report (July 2011 – June 2012) data were collected on four quarters, a total of 79 health facilities were selected from all regions, including Armed Force and Federal police Hospitals, in consultation with the regional health bureaus and based on following selection criteria's,

- Sites already providing services for TB and HIV care in the outpatient departments or other specialised clinic.
- Representation of different geographic areas of the country and different population groups, including urban and rural populations.
- Inclusion of sites that routinely see a large number of TB cases.
- The inclusion of sites that cover “sentinel populations” such as high-risk groups.
- Sites that the National surveillance unit of the EHNRI in association with Regional Health Bureaus are able to supervise effectively and to provide regular logistic back up and support.

A one year data (from July 2011 to June 2012) were collected on quarterly basis from most sites of different regions of Ethiopia (Table 1) using standard TB/HIV surveillance reporting form. This report includes four quarters data from the TB/HIV surveillance sites. Armed forces and Police Hospitals were excluded from this report for confidentiality reason. The total numbers of health facilities selected are shown below:

**Table 1: TB/HIV sentinel surveillance sites in different regions of Ethiopia July 2011-June 2012**

Regions	TB/HIV Hospital sites	TB/HIV Health Center sites
<b>Tigray (6)</b>	Axum Alamata Humera	Adigrat  Mekele  Meqoni
<b>Afar (4)</b>	Dupti	Asayat

		Awash Werer
<b>Amhara (12)</b>	Felegewot Debremarkos Dessie D/Birhan Gonder Metema Debretabor Woldia	Woreta Chagne Kombolcha Kemissie
<b>Oromia (16)</b>	Bisidimo Nekemet Fiche Adama Shashamane Ambo Chiro Goba	Horomaya Holeta Ziway Jimma Bedele Arsi Robe Agaro Moyale
<b>Somali(5)</b>	Karamara  Gode Kebredahar	Aisha  Togochale
<b>Benishangul Gumuz</b>	Assosa Pawi	Bambasi Bulen Kamashi
<b>SNNPR (10)</b>	Mizan Aman Arbaminch Dilla Yirgalem Butajira Jinka	Sodo Teppi Halaba Aleta Wondo
<b>Gambella (5)</b>	Gambella	Metti Abobo Itang Pugndo
<b>Harari (2)</b>	Hiwot Fana	Arategna
<b>Addis Ababa (5)</b>	Zewiditu Minilik	Kolfe Kirkos Gulele
<b>Dire Dawa (6)</b>	Dilchora	Legehare Sabian HC

		Melka Jebdu HC Addis Ketema HC Gende Kore HC
<b>Federal police (2)</b>	Federal PH (A.A) Federal PH (Harar)	
<b>Armed Force (1)</b>	AFGH	
Total (79)	40	39

## Data Collection

As part of their primary responsibility in the health facility, every health worker, working at the TB clinic routinely records patient data on the HMIS unit TB register; and in the same way the health care provider working in the ART follow up clinics (or the data clerk as appropriate), registers client information on the Pre-ART register. The assigned TB/HIV surveillance focal person, at the sentinel site, extracts the necessary information from both registers and fills out the TB/HIV surveillance reporting form. The sentinel sites directly send the filled surveillance format quarterly to the regional health bureaus and the RHB surveillance unit sends the formats to the EHNRI within 15 days of end of every quarter, where data were entered, analyzed.

To standardize the TB/HIV surveillance system across all the sites a guideline is developed and circulated to all the regional health bureaus and surveillance sites. Moreover, a Training of Trainers was organized in two rounds for all the TB/HIV focal persons, and surveillance officers at Regional and federal level to create a common understanding on the TB/HIV surveillance system. Subsequently, a cascaded training was also provided for all sentinel site TB unit and ART unit staff, with the objective of introducing the TB/HIV surveillance guideline with focus on the surveillance rationale, the surveillance reporting format and data flow.

## Reported TB/HIV collaborative indicators

The Sentinel surveillance sites reported on all the 7 core TB/HIV indicators using the surveillance format (i.e. report additional 5 indicators other than those required by the HMIS from 1-7 below).

- 1) **TB Screening for HIV** : Screened for TB symptoms out of Newly enrolled for HIV care in the quarter
- 2) **Active TB among HIV Positives**: New TB cases diagnosed out of HIV positives screened for TB symptoms (TB suspected HIV Positive cases)
- 3) **Isoniazid Preventive Therapy (IPT) for eligible HIV positives**: Given INH Preventive Therapy out of Newly enrolled HIV positives in the quarter (excluding those with active TB)
- 4) **HIV testing for TB patients**: Tested for HIV out of New and all TB cases registered in the quarter
- 5) **HIV Positives among TB Patients**: HIV-positive: out of new and all TB patients tested for HIV.
- 6) **Cotrimoxazole Prophylaxis Treatment (CPT) for TB/HIV patients**: Receive (at least one dose of) co-trimoxazole preventive therapy (CPT) during their TB treatment out of New HIV Positives registered in the quarter.
- 7) **ART for TB/HIV patients**: Started on ART or continue previously initiated ART, during or at the end of TB treatment out of HIV positives,

## **Results and Discussion**

Out of the 79 selected TB/HIV sentinel sites one year report was obtained on quarterly basis from 56(89.1%) sentinel sites starting from July 2011 to June 2012. Of the selected surveillance sites 56 of them (23 hospitals and 36 health center) provided the full data on quarterly basis.

### **1. TB Screening for HIV Positive individuals**

This is a process indicator for an activity intended to reduce the impact of TB among people living with HIV. TB status assessment identifies HIV-positive clients who show no evidence of active TB by symptom screening and would benefit from treatment with isoniazid for latent TB infection. It reveals the extent of implementation of the recommendation that people living with HIV be at least screened for TB at the HIV diagnosis/enrollment in care and at most at every follow-up visits. In this surveillance we used the baseline TB screening status as a proxy measure since it is the only available information on the registers we used. Follow up visit screening would have given information on the quality of TB screening and care for HIV positives. However, the current pre ART/ART registers capture only the baseline TB screening.

Out of the total 14,797 newly enrolled in HIV pre-ART care, the majority 13,672 (92.4%) of them were screened for TB at initial visit. This screening has shown an increase from the pilot phase report (82.5%).The screening rate shows regional variation, ranging from 71.1% in SNNPR to 99.7% in Tigray and Somali. The graph below shows the number of clients screened for TB in different regions. This finding shows that the percentage is in line with the Global plan to stop TB which is 100% screening for all HIV positive patients.

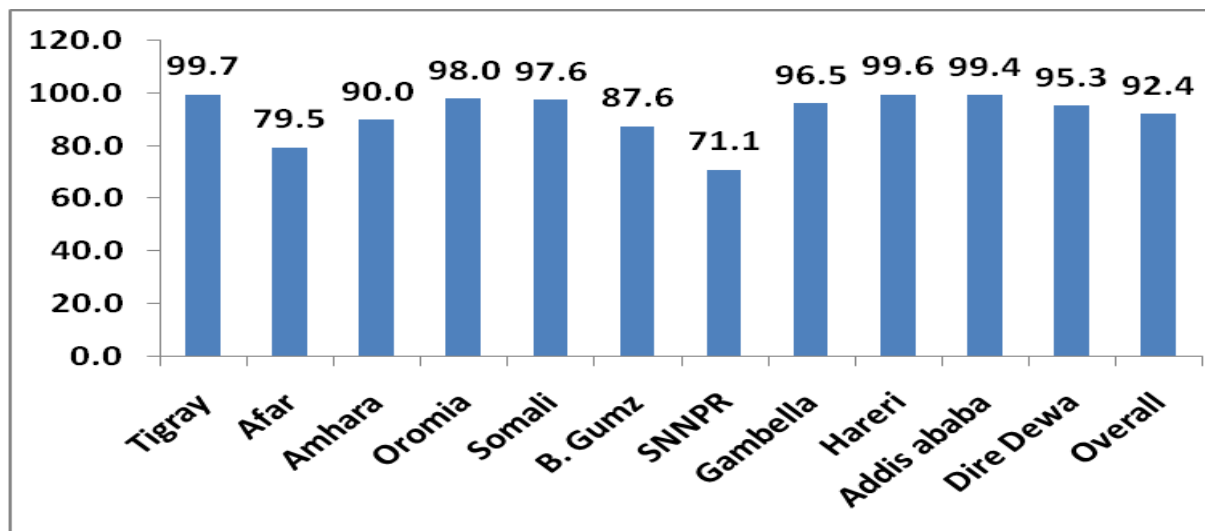


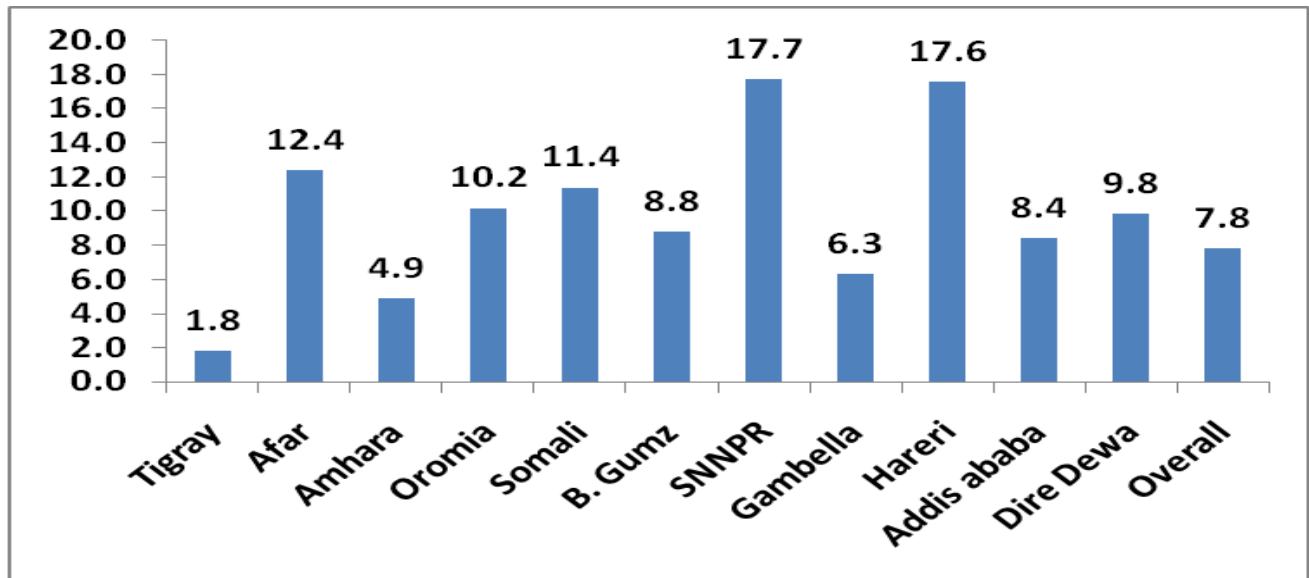
Figure 1: Number of clients screened for TB among newly enrolled for HIV care by Region July 2011 to June 2012.

## 2. Active TB among HIV Positives

This indicator measures the burden of known TB co-morbidity among people in HIV care. This indicator is important for demonstrating the intensified TB Case finding effort as part of the TB/HIV collaborative activities thereby reducing the burden of TB in people living with HIV and their communities and contributing to the overall TB case-detection at national level. It may be used in drug supply planning for ART drug substitution in people treated for TB.

Of the total HIV positive clients, who were screened for TB at initial visit, active TB was detected on 7.8% of them, the active TB prevalence after enrollment in HIV care ranges from 1.7% in Tigray to 17.7% in SNNPR. The graph below shows the proportion of TB cases detected out of the total screened HIV positive clients by region.



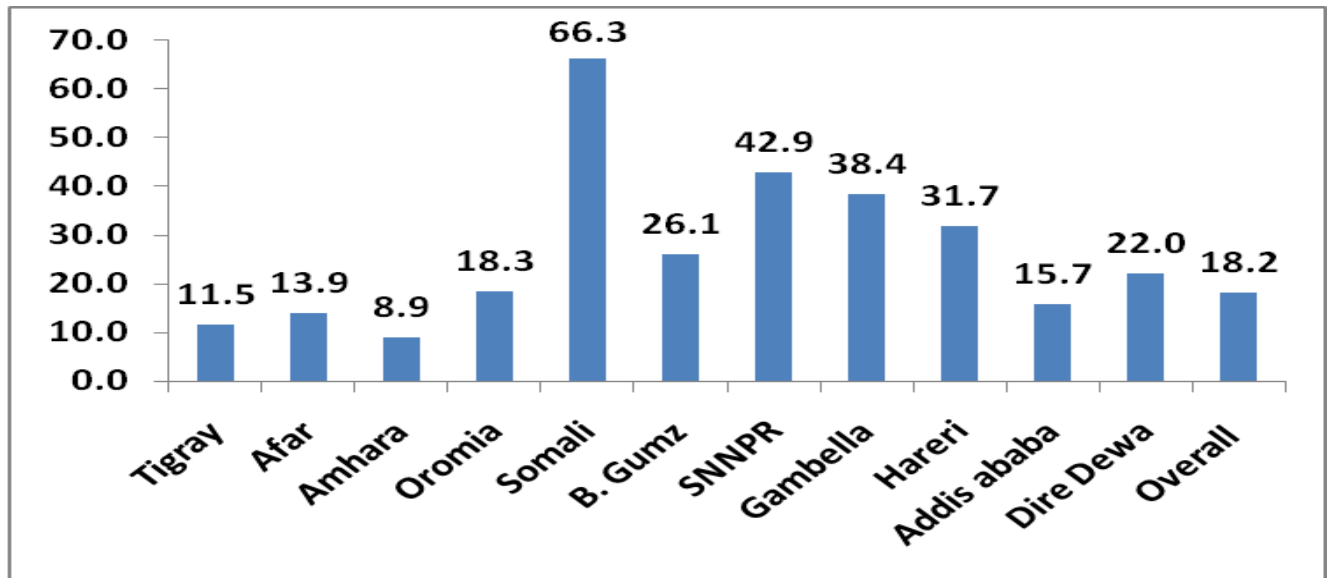


**Figure 2: Number of active TB cases detected among HIV positives by Region July 2011 to June 2012.**

### **3. Isoniazid Prophylaxis Treatment (IPT) for eligible HIV positives**

This indicator measures TB/HIV program effort to ensure that eligible HIV-positive individuals [defined for the surveillance purpose as HIV positive persons in care not found to have active TB by the baseline screen] are receiving treatment for latent TB infection (INH Preventive Therapy/IPT) to reduce the incidence of TB in people living with HIV. The Ethiopian TB/HIV implementation guideline recommends that HIV-positive individuals should be screened for TB (14). Those who are found to have no evidence of active TB will be offered IPT. All clients receiving at least the first monthly dose of INH should be recorded and reported.

This surveillance revealed that, out of the total clients newly enrolled in HIV care, for which active TB was ruled, only 18.2% of them received IPT. The figure ranges from 8.9% in Amhara to 66.3% in Somali. The graph below shows the IPT provision status by Region.



**Figure 3: IPT provision status for newly enrolled HIV positives by Region from July 2011 to June 2012.**

#### **4. HIV testing and counseling for TB patients**

This indicator measures the TB/HIV program effort in offering routine Provider Initiated HIV Counseling and testing service (PITC) to all TB patients. The national TB/HIV implementation guideline recommends offering routine HIV testing for all TB patients (13). TB clinics are the commonest entry points to HIV care and treatment services at health facilities. Routine HIV testing of TB patients is a high yield intervention enabling early identification of co-infected cases and linkage to comprehensive HIV prevention, treatment, and care and support services. Trends over time demonstrate progress towards achieving national and international targets. This indicator measures the ability of HIV and TB services to ensure that the HIV status of all TB patients registered for DOT is known. A high proportion of TB patients knowing their status provide a sufficiently robust estimate of the true HIV prevalence among TB patients for surveillance purposes (1). It also forms the basis for more in-depth prevention efforts (e.g. condoms, partner testing).

This surveillance has revealed that, out of the total 15,912 TB patients, registered for TB DOT treatment during the reporting period, 13,684 (86%) of them were screened for HIV. This

percentage is in line with the Global Plan to Stop TB which is to screen 85% of the TB patients to be screened for HIV. The HIV screening figure varies from one sentinel site to another.

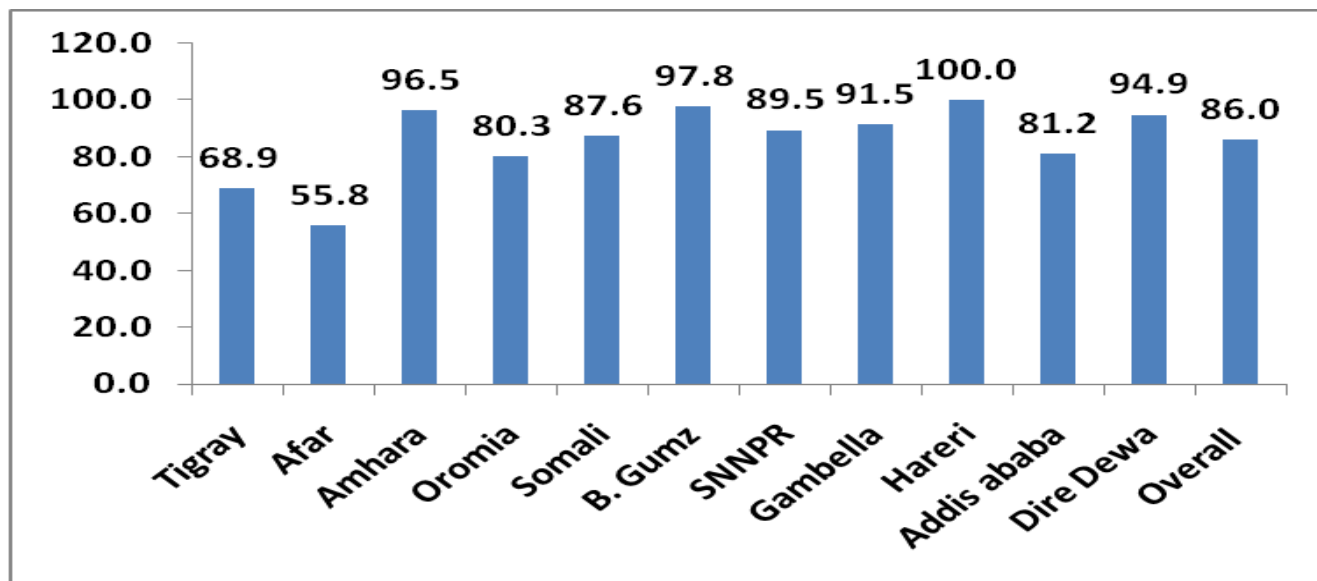


Figure 4: Number of TB patients screened for HIV by Region from July 2011 to June 2012.

### 5. HIV Positives among TB Patients

This indicator assesses the prevalence of HIV among TB patients. This defines an important population for specific interventions aimed at reducing the burden of HIV among TB patients and their communities, such as CPT and ART. It will also be used as the denominator for indicators that measure the uptake of these interventions. Measuring the proportion of HIV-positive TB patients gives important information for targeting of resources, strategic planning of activities, and monitoring the effectiveness of HIV prevention, care and treatment interventions over time. Of the total TB patients registered during the reporting period, who were screened for HIV, 20% of them were positive for HIV. The figure on this indicator is higher than the one reported on the WHO Global TB 2012 report for Ethiopia (8% in 2003EC and close to 10% in 2004EC) (16). This could be because the Surveillance sites are selected by convenience and mostly from urban areas hence may reflect the epidemiology of more of the urban population whereas the national report

is covering both urban and rural and may reflect the true national picture. Furthermore the number of hospitals included in the surveillance are higher proportionally compared to the other sites reporting to the national level, hospitals are mostly seeing seriously ill referral cases, TB cases posing diagnostic complexity e.g. smear negative and extra-pulmonary TB which are more common manifestations in HIV positive cases. As shown on graph 5, The HIV prevalence per region ranges from 4.8% in Harari to 30.6% in Addis Ababa.

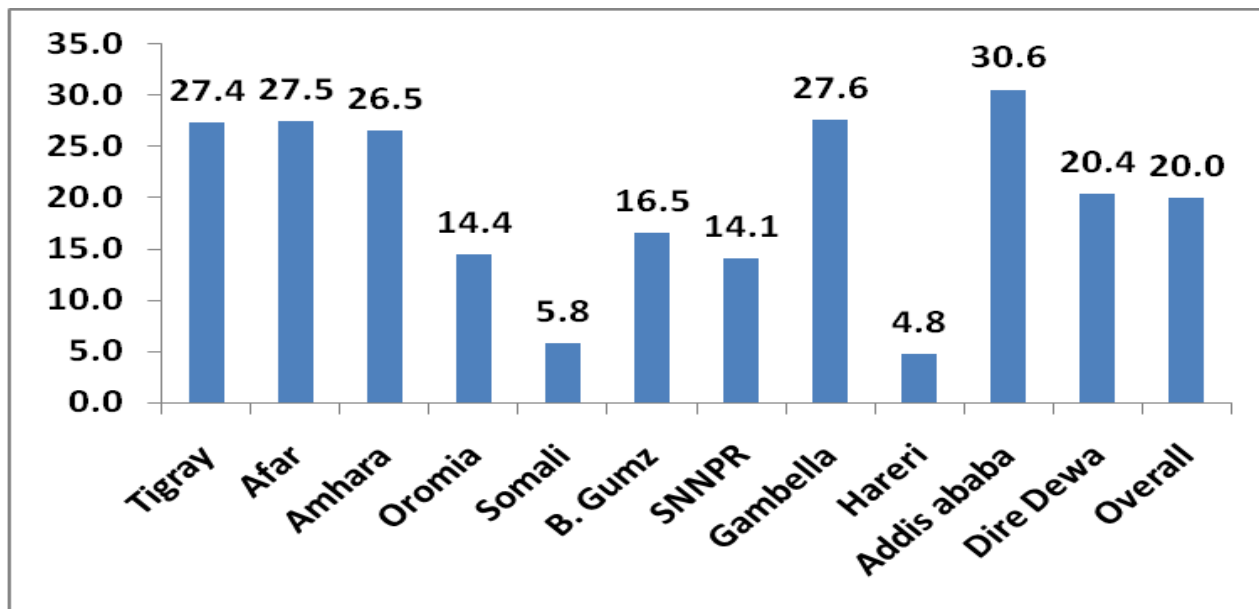


Figure 5: HIV prevalence among all TB patients by Region from July 2011 to June 2012.

## 6. Cotrimoxazole Prophylaxis treatment for TB/HIV patients

This indicator helps to monitor commitment and capacity of programmes to provide CPT to TB/HIV co infected patients. The national TB/HIV implementation guideline recommends provision of CPT to all TB/HIV co-infected individuals irrespective of CD4 status. It is important for programs to know the proportion of HIV-positive TB patients who receive this potentially lifesaving therapy. The use in the definition– that patients be given at least one dose of CPT – is intended to capture all patients who have been assessed and started on treatment. However, It does not imply that one dose of CPT is sufficient. As shown on the graph below, the average CPT uptake is 75.6%, ranging from 61.5% in Tigray to 97.4% in Oromia.

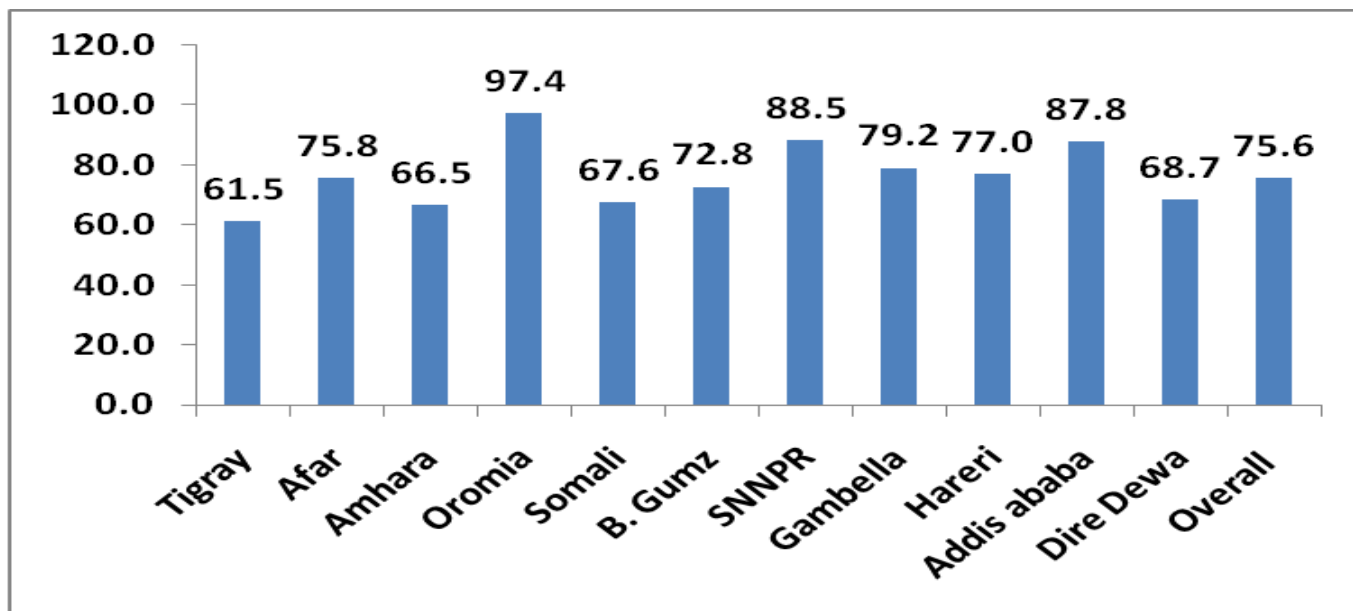


Figure 6: Average CPT Uptake for TB/HIV co-infected patients by Region from July 2011 to June 2012.

### 7. ART for TB/HIV coinfectd patients

This is an outcome indicator to measure commitment and capacity of TB services to ensure that HIV-positive TB patients are able to access ART. The national TB/HIV implementation guideline recommends provision of ART for TB/HIV co-infected individuals if they are WHO clinical stage IV or  $CD4 < 350/mm^3$ . Documentation of whether or not TB patients are started on ART is important not only for program management but also for individual patient care. TB program personnel need to be aware of a TB patient starting on ART so that they can manage drug reactions and interactions appropriately. It also measures the degree to which ART has become a component of the package of care offered to HIV-positive TB patients. It also provides a measure for the accessibility of ART to HIV-positive TB patients, drug availability, the degree to which health-care providers encourage ART as a part of routine care, and the success of TB and

ART health services in referring, managing and tracking registered TB patients eligible for ART (i.e. the strength of the referral process).

The surveillance has showed those most are above 50% of TB/HIV co-infected patients, ranging from 14.8% in Harrare to 72.7% in Somali, have started or continued the previously initiated ART during the course of their TB treatment. See below for ART coverage by Region.

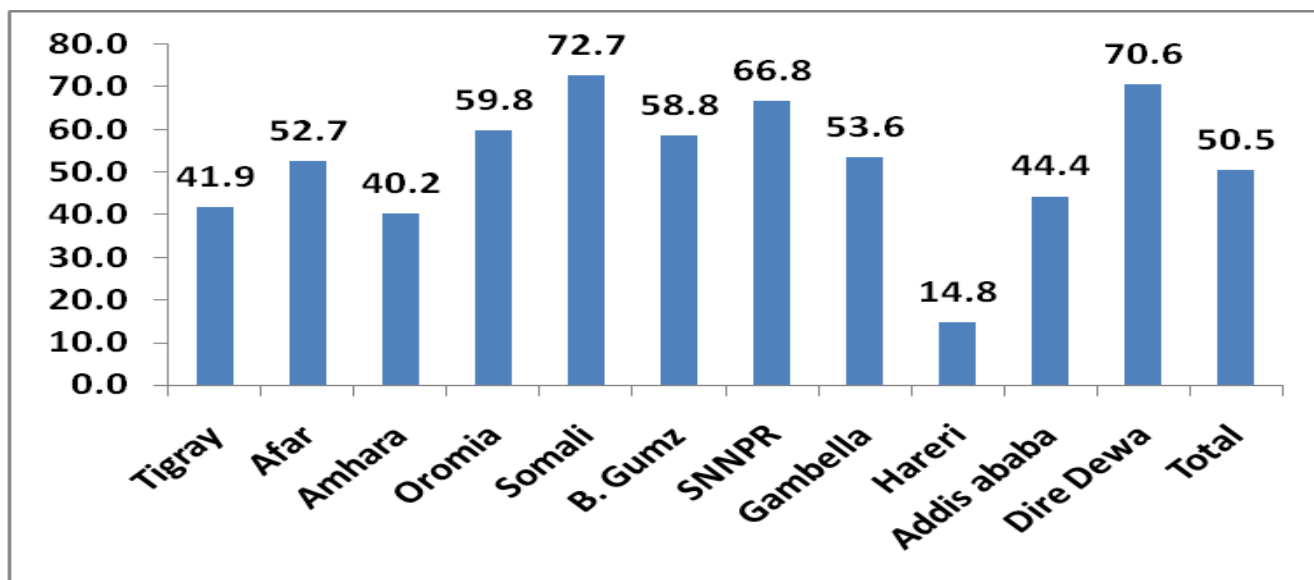


Figure 7: ART coverage for TB/HIV co-infected patients by Region from July 2011 to June 2012.

### Limitations

This surveillance system captures TB/HIV data from selected health facilities which do not assume neither Regional nor national representativeness, therefore care should be taken not to generalize this surveillance findings to respective regional or national TB/HIV program performance. However, after evaluating the pilot outcome, by addressing the identified limitations at central, regional and site level, EHNRI has scaled-up the surveillance to 79 health facilities in the country and of which 56 of them successfully reported. The number of sentinel sites will be increased progressively until we adequately represent Regions and ultimately to be

able to infer the findings to the nation. Additionally, there is delay to send the reports from regions to EHNRI.

## **Conclusion and recommendation**

- TB status assessment among people living with HIV, followed by prompt diagnosis and treatment, increases the chances of survival, improves quality of life, and reduces transmission of TB in the community. This surveillance revealed around 92% performance on this indicator. Though the figure shows that majority of PLWHA are being screened for TB at initial visit, Programs should aim for a higher target for this indicator (close to 100%) but should interpret it in conjunction with the values of indicators 2 and 3, to ensure that appropriate action follows the screening process. A low value will demonstrate that– the objective of programs to reduce the burden of TB among people living with HIV – is unlikely to be met. The 7.8% TB prevalence in the reporting period would be different if the screening achievement was high, since the TB prevalence percentage is highly dependent on the denominator; i.e. the performance with TB screening intervention. Nonetheless, it can serve as a proxy indicator for assessing the burden of TB among HIV positive clients receiving care. Subsequent visit TB screening needs to be captured to better evaluate the quality of the TB/HIV care services.
- Regarding the IPT uptake for eligible HIV positives, the average performance is found to be only 18%, which is a very low figure. To include individuals who are given at least one dose is relatively easy, even in resource-limited settings. This information is the minimum necessary to ensure that IPT is being offered to HIV-positive individuals without evidence of active TB even though it is not appropriate for monitoring adherence status or treatment completion. Most programs would reasonably aim to provide IPT to more than 60% of eligible clients. Programs should work more in promoting IPT uptake to reduce the incidence of TB disease among people living with HIV. In addition, more data on adherence or completion needs to be captured to have a complete understanding of the performance on this indicator.

- Above 85% of TB patients were found to have a documented HIV status showing a good uptake of HIV testing at TB treatment sites –and thus early detection of HIV. This indicator together with the CPT and ART status indicators will provide a good picture about the extent of linkage of HIV co-infected TB patients to HIV care and treatment services, as this is one measure of quality of TB/HIV care. According to the Global plan to stop TB, by mid-2010 there were 55 countries which >75% of the TB patients tested for HIV showing that the plan can be reached by 2015 (15).
- The average HIV prevalence among TB patients is found to be 20%, this indicator showed marked regional and site level variation. This figure should be interpreted together with indicator 4, in this surveillance since a good proportion of TB patients (85%) undergo HIV testing; the value of the indicator is expected to provide a robust estimate of true HIV prevalence among TB patients. This should be cautiously interpreted since it may not show the actual HIV prevalence situation in the general population. A high value compared to the national average may suggest that true HIV prevalence among TB patients is higher in that particular area or that only patients with a higher risk of HIV infection are encouraged to have a test. Any variation from expected results should prompt further investigation and may back up surveillance data on HIV prevalence in the general population obtained from other sources.
- The average CPT uptake is found to be about 75%. This indicator measures the degree to which TB services are able to ensure that HIV-positive TB patients receive CPT. It will not provide information on when CPT is started during TB treatment or on adherence to treatment. According to Implementation Guideline for TB/HIV Collaborative Activities in Ethiopia, All HIV co-infected TB patients receiving CPT should be registered on Unit TB register and Pre ART/ART Register. Furthermore the report also shows, the percentage of HIV-positive TB patients who were started on co-trimoxazole preventive therapy (CPT) has reached 75%, which shows that the data found from the surveillance sites is consistent with the Global plan to stop TB. However programs should work towards increasing the CPT uptake close to 100% to bring a reduction on morbidity and mortality among HIV-positive



TB patients. Moreover there is a need to assess the adherence of patients on CPT to have a complete picture about the situation.

- According to the Ethiopian national implementation guideline, only HIV co-infected TB patients individuals whose CD4 count is below 350/mm<sup>3</sup> or having WHO stage IV disease are eligible for ART (14). According to program evaluation reports more than 80% of TB/HIV co-infected clients have CD4 count below 350 and thus would be eligible for ART. This surveillance showed that above 50% of TB/HIV co-infected patients have started or continued previously initiated ART during the course of their TB treatment. Recent evidences showed that ART improves treatment outcome of TB/HIV co-infected individuals reduce early mortality from HIV/TB co-infection, and reduce TB transmission when ART is initiated earlier in all individuals with TB and improved management of TB (1). Hence programs need to provide due attention to the quality of TB/HIV care and improve ART uptake as part of the TB/HIV co-management and as per the recommendation in the national guideline.
- This surveillance system doesn't show TB/HIV in age disaggregated data. The incidence of TB in HIV-infected children is 20 times higher than that of uninfected children, and there is high associated TB/HIV-related morbidity and mortality (1). Collaborative activities to reduce the burden of TB in HIV-infected children and treatment of HIV in children infected with TB are the same as for adults. Nevertheless, in monitoring these collaborative activities it is important to disaggregate by age into children (aged 0–14 years) and adults. Moreover registers need to be modified to capture DNA-PCR HIV test results of infants diagnosed with TB to better assess the quality of pediatric TB/HIV care and measure the overall HIV prevalence among pediatric TB patients.
- In addition, this surveillance does not indicate the type of tuberculosis among TB/HIV co infected patients. This could also affect the ART coverage (indicator 6) as the enrollment to ART may depend on the type of tuberculosis. This information would be of help to inform the TB/HIV collaborative programs so as to design appropriate interventions to improve the quality of care and reduce mortality among TB and HIV patients.

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