Master thesis

Title of study: **TB screening among HIV positive VCT clients, HIV testing of TB patients and provision of HIV care in Southern Nations Nationalities and Peoples Region of Ethiopia: validation of routine health facility data**

SHUMET ADNEW LONSAKO

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Université Victor Segalen Bordeaux 2

Advisor: **Prof. Piero Olliaro, World Health Organization, Geneva**

Study Director: Dr. Pascal MILLET, Centre René Labusquière, Université Bordeaux 2

Jury members: Pr. Denis MALVY, Centre René Labusquière, Université Bordeaux 2

Pr. Annie SASCO, ISPED, Université Bordeaux 2

Pr. Marie-Edith LAFON, Virology Laboratory, Université Bordeaux 2

Pr. jean Louis KOECK, Hôpital Robert Piqué, Bordeaux

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Declaration

This thesis " *TB screening among HIV positive VCT clients, HIV testing of TB patients and provision of HIV care in Southern Nations Nationalities and Peoples Region: validation of routine health facility data" is the result of independent investigation of the routine health service report data base from the regional health bureau.* Where my work is indebted to the work of others, I have made appropriate acknowledgements.

I declare that this study has not already been accepted for any other degree nor is it currently being submitted in candidature for any other degree.

Shumet Adnew Lonsako

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Abstract

Background: Access to HIV/AIDS care and treatment, by HIV infected tuberculosis (TB) patients has been increasing in the past few years; however the majority of TB patients do not know their HIV status and part of those who do know may not have access to Co-trimoxazole Preventive Therapy (CPT) or Anti-Retroviral Therapy (ART) for different reasons. In addition only a minority (39.3%) of TB cases are detected through all means deployed in Southern Nations and Nationalities Peoples Region (SNNPR) of Ethiopia. In a setup like ours, with large numbers of HIV infected clients, active TB screening can detect unrecognized TB disease and contribute significantly to TB control. However, since the initiation of TB/HIV collaborative activities at a wider scale in 2005, the availability and utilization of the above services, and the use of routine TB/HIV surveillance data to evaluate program performance for subsequent improvement and planning have not been assessed. Therefore validating the use of routine health service data to respond to the above questions is important.

Objective: To determine: (i) the proportion of registered TB patients tested for HIV and the prevalence of HIV infection among those tested; (ii) the proportion of HIV positive VCT clients screened for active TB and the proportion diagnosed with TB; (iii) the proportion of HIV and TB/HIV patients provided with IPT and CPT/ART respectively; and (iv) the distribution by administrative division, facility, gender and type of facility, using routine health service data.

Methodology:

This is a retrospective analysis of prospectively collected data on a routine TB/HIV surveillance report of health facilities compiled at the regional health bureau from October 2007 to June 2008. After cleaning and crosschecking the data, variables were coded and analysed in Excel. The analysis includes descriptive statistics using frequency tables, graphs; comparisons use the Chi 2 test for categorical variables; prevalence ratios are presented with 95% confidence interval. Differences were considered statistically significant when alpha < 0.05.

Result:

Of the total 17581 newly registered TB patients of all types, 5526 (31.4%) were offered pretest information about HIV in the three quarters covered by this study, of whom 4141 (75%) complied with testing, making the total proportion tested to be 23.6%. The HIV prevalence among tested TB patients was 19.1% (95% CI: 17.9 - 20.3). Of the 791 HIV positive TB patients, 420 (53.1 %) and 334 (42.2 %) were provided with CPT and ART during their anti TB treatment respectively. Significantly higher proportions of TB patients complied with HIV testing after pretest information at hospitals (82.8%) than at the health centers (66.6%) ($p = <0.00001$), with significantly higher HIV prevalence ($p = 000026$). Similarly, more patients were provided ART at the hospitals (45.3%) than at the health centers (37.1%) ($p = 0.024$), but the difference was not significant with regards to CPT provision ($p = 0.0533$). More males were counseled and tested for HIV than females ($p = <0.00001$ and $p = 0.0059$, respectively). On the contrary, significantly more females complied with HIV testing after pretest information than males ($p = 0.027$), with no significant difference in HIV prevalence ($p = 0.081$). Of the 1524 HIV positive VCT clients, 522 (34.2%) underwent TB screening and 10% of the total HIV positive VCT clients were diagnosed to have active TB, but only 65 (4.3%) were provided IPT. Hospitals screened a significantly higher proportion of HIV positive VCT clients (49%) than health centers (21.2%) ($p = <0.0001$), however only a small proportion of HIV positive VCT clients were given IPT (1.7%) compared to health centers (6.6%) ($p = <0.0001$). Marked variations were observed between administrative divisions with respect to all the above outcomes.

Conclusion

The present study has identified important findings and indicated areas that need further exploration for designing specific interventions, thus providing a preliminary assessment which calls for subsequent studies to examine a number of factors to explain and correct the observed findings. Routine TB/HIV health service data can be used to assess program performance, but improvements are needed to include important information currently not collected that would allow a more precise estimation and provide an explanation of some of the observed findings

1. Introduction and background information

Tuberculosis (TB) is a major cause of mortality and morbidity among human immunodeficiency virus (HIV) infected persons and may accelerate the progression of HIV related immune suppression (WHO, 2003). In countries with generalized epidemic, HIV infection increases the likelihood of developing active TB by 20 times (WHO, 2008). This interaction calls for close collaboration between the two programmes. Ethiopia, ranked as number seven globally with notified number of TB cases, had an incidence rate of 168 and 379 per 100 000 population for sputum positive pulmonary and all forms of TB respectively, and a prevalence rate of 643 per 100,000 population in 2006 (WHO, 2008). The TB notification rate has been rising in the past decade, and TB accounted for 40% of deaths in HIV patients in 2007 (FMOH, 2007d). The fast spread of HIV is believed to be a major contributing cause. According to recent estimates, the country has an HIV prevalence of 2.1% with about one million people living with HIV/AIDS (FMOH, 2007b). Likewise, the number of registered TB patients has increased from 8,339 in 1997 to 22,692 in 2007 in Southern Nations Nationalities and Peoples Region (SNNPR) of the country (FMOH, 2007a), and the projected regional adult HIV prevalence is not expected to decrease in the near future (FMOH, 2006).

Following an established evidence on the benefit of Highly Active Antiretroviral Therapy (HAART) and other care and support services to HIV infected TB patients (Girardi, et al., 2000), access to treatment, care and support services globally has been increasing, mainly through support of international partners like the Global Fund for AIDS, Tuberculosis and Malaria and PEPFAR (WHO, 2007d). In light of this, information on HIV status in TB patients is essential to respond to the increasing commitment to provide comprehensive HIV/AIDS care and support, including Antiretroviral Therapy ART, to HIV-positive TB patients (WHO, 2004c;WHO, 2004b). Despite a three fold increase in both HIV testing of TB patients and detection of HIV/TB co-infection since 2003 (WHO, 2007d), the total coverage is still very low globally (WHO, 2008). There is evidence that, where the WHO recommendation of TB/HIV collaborative initiative is implemented, HIV

testing uptake of TB patients increases, as was the case in Kenya (from 31.5% to 59%, nationally in 2005/6 (Chakaya, et al., 2008)

Ethiopia started to implement TB/HIV collaborative activities at a wider scale since 2005, but only 2.6% of notified TB cases were tested for HIV (40% positive) in 2006 (WHO, 2008). Clearly, this should and can be corrected, as these patients are already in the health care system. To our knowledge, except one hospital based study that showed a very low (35%) testing of TB patients in SNNPR (Jerene, et al., 2007), there has not been any wide scale comprehensive assessment made so far. In particular, apart from simply channelling health information routinely from the health facilities to the next administrative level, it would be important to assess how the routine TB/HIV surveillance data can be used to measure program performance for subsequent improvement and planning.

It has also been shown that Voluntary Counselling and Testing (VCT) when complemented with the administration of co-trimoxazole reduces mortality rates in TB patients under routine programme condition (Chimzizi, et al., 2004). In this regards good performance was obtained both in studies conducted as pilot or model programmes like the START initiative and ProTEST in South Africa (WHO, 2004d), and when used at routine programme level implementation in some countries like Kenya and South Africa (Chakaya, et al., 2008; Colin, et al, 2006). As for Ethiopia, the WHO global TB report, noted that 86% and 27 % of co-infected patients were provided co-trimoxazole and ART respectively in 2006, but also that a small proportion (39%) of the estimated all new TB cases were detected and very few (2.6%) TB patients (new and re-treatment) knew their HIV status in 2006 (WHO, 2008).

Provision of ART is generally insufficient. Considering the increasing commitment by the government and strong partners support as has been observed in our region, improved results seems

to be achievable, however the administration of ART to patients on anti TB treatment is still fraught with patient management challenges, high staff turnover, and logistic hurdles of offering these packages to places at a distance from the region (FMOH, 2007b). This might affect the full potential benefit; therefore it is interesting to see how this had been working in our setting.

Periodic measurement of HIV seroprevalence among TB patients can inform planning, help targeting of resources, and monitoring the effectiveness of these activities over times besides raising awareness among policy-makers and health care workers (WHO, 2004a). In addition, in many places HIV prevalence in TB patients is also used as an indicator of the spread of HIV into the general population (WHO, 2004c; Corbett, et al., 2006) and measures the success of HIV/AIDS and TB prevention and control measures (WHO, 2004a). Considering this, WHO recommends routine HIV testing data for HIV surveillance among TB patients, when available, to be used at all levels of HIV epidemic (WHO, 2004c). Because, it helps individuals to benefit from the available preventive and treatment services, unlike that of anonymous unlinked technique that has many ethical concerns and no individual patient benefit and public health benefit from HIV preventive activities. However, the requirement of a high coverage (> 85%) of testing to form a reliable surveillance system (WHO, 2004c) limits many countries from using it, apart from other limitations of differential access and participation bias. In SNNPR two studies estimated the prevalence of HIV among TB patients in 2002 and 2004/5, however both used anonymous unlinked method (Datiko, et al., 2008; Yassin, et al., 2004). Although these studies might give us a better estimate of point prevalence and trend, it gives little information on routine program level performance. Therefore, it is useful to use routine data to respond to the above question, despite the limitations. However, good quality data is required to get a legitimate information that helps in program improvement and decision making.

Equally important is intervention targeted at early identification, treatment and prevention of TB in controlling both TB and HIV epidemic. Because, early case detection and treatment of TB can slow

the progression of HIV infection and help to reduce transmission of TB (WHO, 2004a). The most efficient approach to detecting more TB cases involves intensified case finding in setting where People living with HIV/AIDS (PLWHA) are concentrated (Quigley, et al., 2001). This was evidenced by a pilot project PRoTEST multi country study where it identified 10% of HIV-positive clients with active TB (WHO, 2004d), while 5% was diagnosed in another similar setting in Uganda (Mugisha, et al., 2006) and 7% in an urban VCT centre in Ethiopia (Shah, et al., 2009). Despite this fact, TB screening of HIV clients and provision of IPT remains at extremely low levels globally (WHO, 2008). This is particularly a problem when countries implement TB/HIV under routine program level, as compared to research based interventions and in pilot programs. In South Africa, for example only 16 % of HIV positive clients were screened for TB from 2001 - 2005 under routine program level implementation after wide national scale up following successful results from previous pilot programs (Colin, et al, 2006).

Only a minority of TB cases are detected (39.3%) through all means deployed in SNNPR (FMOH, 2007a) and despite the presence of significant number of HIV infected clients with unrecognized TB disease and initiation of TB/HIV collaborative activities, measures to increase case detection like intensified TB case finding in HIV patients has not been fully explored. However a study on TB case finding of HIV positive VCT clients in Addis Ababa showed that the traditional symptom screening (currently recommended by the national guideline) can help to exclude TB disease with significant specificity (83%) (Shah, et al., 2009). Cognizant of this fact, both nationally and in our region, there has not been wide scale information on the status of active TB screening at VCT/HIV clinics and IPT provision, and how this activity contributed to TB case detection. In addition, while increasing numbers of TB cases have access to high-quality anti-TB treatment as well as to related interventions such as ART and CPT, the majority of HIV-positive TB cases do not know their HIV status and part of HIV-positive TB patients who know their HIV status may not have access to CPT or ART.

Therefore it is critical to look at the practice of TB case finding at VCT clients, counseling and testing of TB patients and its uptake, distribution of these with respect to type of facility, administrative devision, and gender, as well as provision of IPT, CPT and ART under routine program level in accordance with the national guideline.

2. Aim:

To assess the status of HIV testing among TB patients, TB screening of HIV clients and provision of care and treatment using routine health service data in SNNPR

3. Objectives

- To determine the proportion of registered TB patients tested for HIV and the prevalence of HIV infection among the tested
- To determine the proportion of HIV positive VCT clients screened for active TB and the proportion diagnosed with TB
- To determine the proportion of HIV and TB/HIV patients provided with IPT and CPT/ART respectively
- To determine the distribution of HIV testing and prevalence, TB screening and provision of CPT, IPT & ART by administrative division, facility, gender and type of facility

4. Methodology

4.1. Study setting

SNNPR is one of the nine administrative regions of Ethiopia, with a capital Awassa and an estimated total population of 15,042,531 (FDREPCC, 2008). The region is divided into 13 administrative sub regions called zones, eight special districts, and one city administration; each of the zones are further divided into a total of 133 districts. In 2007, the region had a total of 4910 health facilities, (4615

government, 85 NGOs and 210 privately owned). Of the total government health facilities, 13 were hospitals, 180 were health centres, and 4425 were health posts and health stations (FMOH, 2007a). The physician to population ratio in 2007 was 1 : 98,845, and the nurse to population ratio was 1 : 7149 (FMOH, 2007a).

All the health centres and hospitals diagnose TB and provide DOTS, whereas health posts follow DOTS treatment, and are involved in defaulter tracing and health education (FMOH, 2004). DOTS program was started in the region in 1994 and now has 100% coverage. As of 2007, 90% of health facilities (hospitals, HCs) provide VCT services, and ~30% of these facilities provide HAART (FMOH, 2007a) since 2005. Both TB and VCT clinics are usually staffed by nurses and in some health centres VCT clinics might be staffed by community counsellors. All government and one NGO hospitals as well as 30 government and 4 NGO health centres initiated TB/HIV collaborative activities since 2005.

According the FMOH report, the estimated regional prevalence was 1.4% (1.7 for females and 1.2 for males). HIV prevalence among VCT clients was 6.6 %; there were 132 410 people living with HIV and 18,739 annual new infections (FMOH, 2007a); there were 22 692 newly notified TB cases with an estimated case detection rate of 39.3% for sputum positive pulmonary TB cases (FMOH, 2007b); and the health service coverage for Health centre, health station and health post was 40% - but recent data from the region is higher (75%) (SNNPR Regional Health Bureau)

4.2. Study design and methods

This is a retrospective analysis of prospectively collected data on a routine TB/HIV surveillance report of health facilities compiled at the regional health bureau from October 2007 to June 2008.

After starting the TB/HIV collaborative initiative in the country in 2002, a quarterly reporting format was developed by the federal ministry of health for use at all levels. The tool was designed to include information about TB clinic and VCT clinic. On the TB clinic side it has information on

number of TB patients HIV counselled and offered testing, HIV test result, and number of TB/HIV patients offered CPT and ART during the TB treatment. On the VCT side it includes information on number of VCT clients tested for HIV, HIV test result, number of HIV positive clients and HIV negative TB suspects referred for TB screening, number of referred clients screened for TB, number of active TB cases identified through screening, and number of clients offered IPT.

It should be noted that as the variable labelled "referred clients screened for TB" does not differentiate between HIV positive and negative VCT clients (whereas the variable VCT clients referred for TB screening, does identify the HIV status). However in practice, according to the regional TB team leader and form personal experience of working with the TB/HIV programme in the region, this information is collected at ART clinics when HIV positive VCT clients are referred there for TB screening in those facilities that have ART services; those that do not have ART services will refer HIV positive VCT clients to other ART centres after screening for TB at the OPDs, By contrast, HIV negative TB suspects referred to OPDs usually do not return to the VCT, since the diagnostic workup is finalized at the OPDs like any other outpatient clients, and are then directly sent to TB clinic for DOTS if diagnosed with TB; this information is usually not captured by VCT clinics from the OPDs. Therefore we considered TB patients reported to be screened as HIV positive. In addition the number of HIV negative VCT clients referred for TB screening to the OPDs is expected to be very few and unlikely to make a difference.

HIV testing strategy used at the TB clinic was provider initiated testing and counselling using an opt-out method - a strategy recommended nationally by the ministry of health (FMOH, 2007e). However, since such data do not capture newly registered TB patients at individual health facilities, we used zonal figures of newly registered TB patients as obtained from the TB quarterly report using the corresponding TB/HIV quarterly figure as our denominator. It should be noted that the reporting system permitted to estimate access to services at the level of region/zone/special district and not for individual facility. HIV testing follows one screening, one confirmatory and one tie

breaker test in a serial manner and uses determine, capillus and serocard or unigold respectively (FMOH, 2007e). Screening tests were done by both TB and VCT nurses in their clinics, while confirmatory and tie breaker tests were performed by laboratory technicians in the laboratory. Test result is given in same day.

HIV clients are referred from VCT clinics to outpatient departments or ART clinics for TB screening, diagnosis is made by physician in the hospitals and health officers or nurses in the health centres using symptom checklist, AFB microscopy and X-ray (at the hospitals) based on the national guideline (FMOH, 2007c). For HIV-infected patients in whom active TB has been excluded, eligibility for IPT is determined by ascertaining that the patient has no: previous TB treatment history, abnormal x ray, terminal stages of AIDS, allergy, pregnancy, history of hepatitis, high daily alcohol consumption, and history of poor compliance with treatment. Eligible patients are provided at HIV clinics a monthly supply of INH 300mg to be taken daily for six months (FMOH, 2007c) TB patients who tested HIV-seropositive were eligible for adjunctive cotrimoxazole, provided there were no contraindications such as history of sulphonamide allergy, first trimester of pregnancy, the first six weeks of breast feeding mother, severe pallor or tendency of bleeding, and renal & hepatic insufficiency. It is given in the same TB clinic in most facilities until they finish their anti TB treatments and at the ART clinics in some facilities, at a dose of 480 mg (400 mg sulphamethoxazole and 80 mg trimethoprim) daily and collected monthly (FMOH, 2007c). In addition, HIV positive TB patients are to be sent for ART eligibility assessment and initiation to the ART clinics if available at the site or referred to the nearby facility. The national recommendation to initiate ART to TB/HIV co infected patients is to provide ART in the initiation phase of anti TB treatment after 2 to 4 weeks of stabilization if the patient has CD4 cell count <200cell/mm3, in the continuation phase (after two months) for patients with 200-350 CD4 cell/mm3 in places where CD4 test is available; and to initiate all stage 3 and 4 (all TB/HIV) patients in the initiation phase after the first 2-4 weeks of stabilization if CD4 test is not available (FHAPCO, 2007b) All TB/HIV services such as CPT, ART,

INH, HIV testing, and DOTs were given free of charge in all health facilities.

Training of health professionals on TB/HIV and Provider Initiated Testing and Counseling (PITC) was conducted as per the national guideline and WHO recommendation, though the country did not have a standardized curriculum. The training is delivered mostly by partners and the ministry of health in collaboration.

Thus, we used the regional data base compiled as part of the routine reporting system used by the ministry of health, where routine data from each health facility are collected quarterly by TB and VCT clinic nurses and reported to the respective zone/district health departments through the facility Head. These data were compiled at the regional health bureau and made available as a Microsoft Excel file. After cleaning and crosschecking the data, variables were coded and analysed in Excel. The analysis includes various descriptive statistics using frequency tables, graphs; comparison of some characteristics of patients using the Chi 2 test for categorical variable; prevalence ratio (we used 95% confidence interval and 0.05 degree of freedom).

4.3 Permission to use data

Data are received and anonymised after permission from the regional health bureau

5. Result

5.1. Characteristics of the group

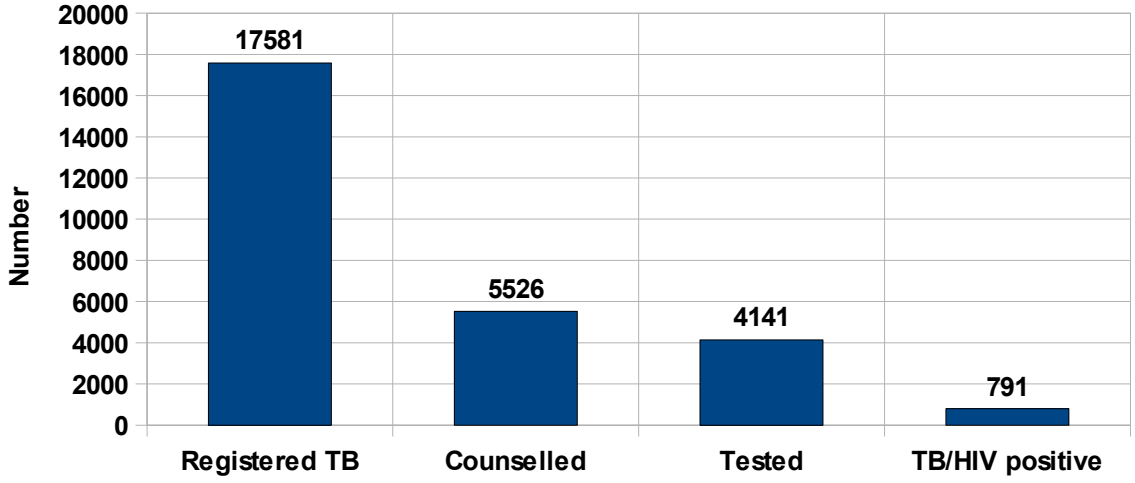
In the three quarters period, of the 194 health facilities that include hospitals and health centres, 48 had been providing TB/HIV services, of which 14 were hospitals and 34 were health centres. Of these facilities, nine hospitals and 32 health centres reported activities from the VCT clinic, whereas 13 hospitals and 33 health centres reported their TB clinic activities. In the same period a total of 17,581 new TB patients of all type were registered by the TB clinics in the region (54% male and

46% female) and 42,890 clients were seen at the VCT clinics (58% male and 42% female).

5.2. TB clinic

5.2.1. Uptake of HIV counselling and testing, and Prevalence among TB patients

Graph 1. Access to HIV counselling & testing, prevalence of HIV among newly registered TB patients in SNNPR, 2007/8



Of the total 17,581 newly registered TB patients of all type in the region, 5526 (31.4%) were offered pretest information about HIV in the three quarters, of whom 4141 (75%) accepted to be tested. Of the 4141 new TB patients of all types tested , 791 were found to be HIV infected making the prevalence of HIV infection among tested TB patients 19.1% (95% CI: 17.9 - 20.3).

Table 1: Distribution of HIV testing and prevalence among TB patients by gender in SNNPR, 2007/8

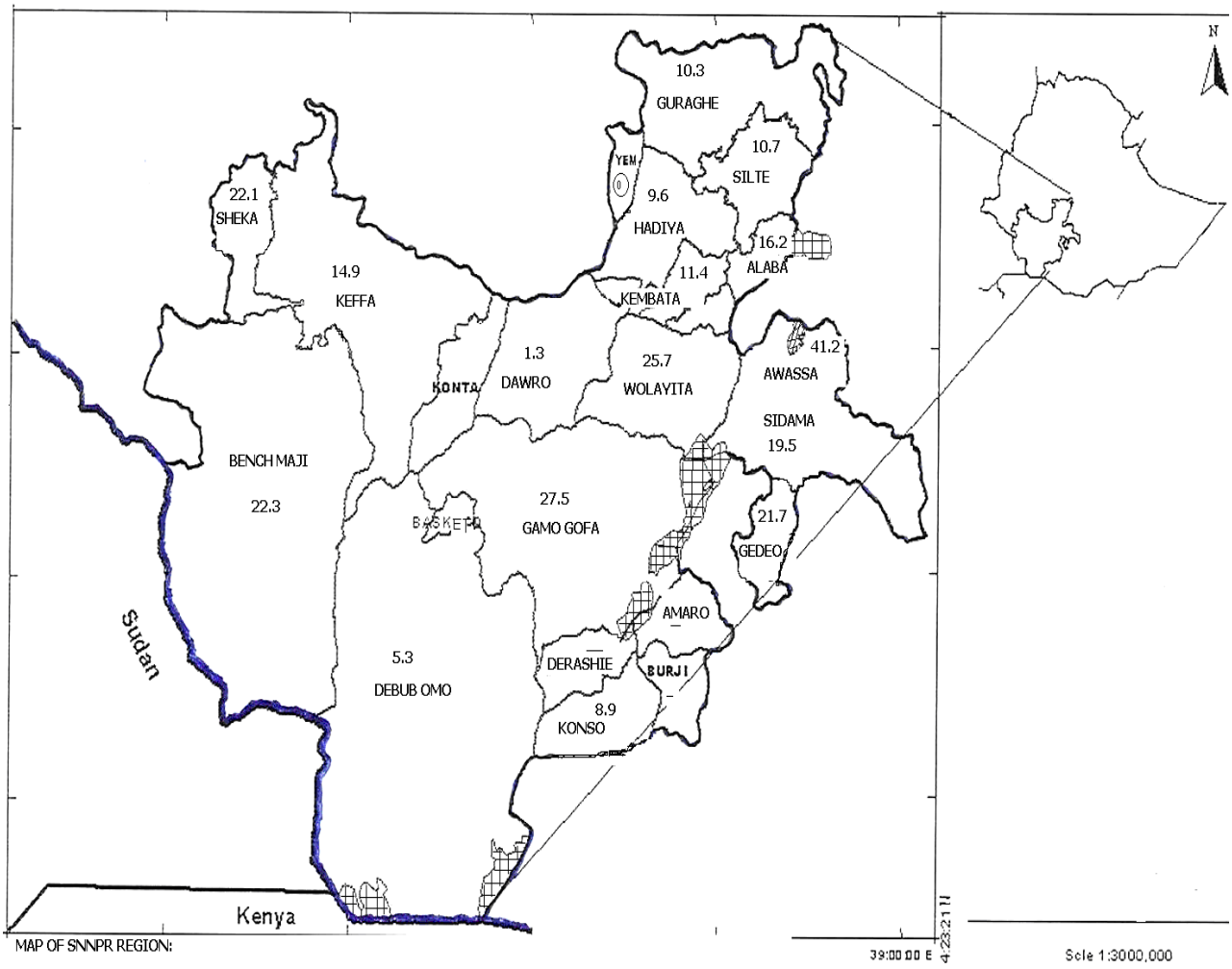
Characteristics	Male n/N (%)	Female n/N (%)	p - value
HIV counselling offered of total TB (availability)	3127/9471 (33%)	2399/8110 (29.6%)	0.000001
Tested of total TB patients (access)	2308/9471 (24.3%)	1833/8110 (22.6%)	0.0059
Tested of total counselled (uptake)	2308/3127 (74%)	1833/2399 (76.4%)	0.027
Positive (prevalence)	419/2308 (18.2%)	372/1833 (20.3%)	0.081

Table 1. shows the distribution of HIV counselling and testing, and prevalence by gender. More males were counselled and tested for HIV than females and the difference was statistically significant, ($p = <0.00001$ and $p = 0.0059$, respectively). Conversely, significantly more females accepted to be tested for HIV after pretest information than males ($p = 0.027$). No significant difference was observed in HIV prevalence ($p = 0.081$).

Table 2: Distribution of HIV counselling & testing, and prevalence of HIV among TB patients by adminstrative divisions, SNNPR, 2007/ 8

Zone/spec distr/town admin	Registered TB N	Counselled for HIV n (%)	Tested of those registered n (%)	Tested of those counselled n (%)	HIV positive n (%)
Alaba spec distr	220	123 (55.9)	69 (31.4)	69 (56.1)	11 (16)
Awassa town adm	731	328 (44.9)	209 (28.6)	209 (63.7)	84 (40.2)
Bench/maji zone	1014	190 (18.7)	112 (11.1)	112 (59)	25 (22.3)
Dawuro zone	336	78 (23.2)	77 (23)	77 (98.7)	1 (1.3)
G/Goffa zone	1446	567 (39.2)	451 (31.2)	451 (79.5)	124 (27.5)
Gedeo zone	1457	496 (34)	433 (29.7)	433 (87.3)	94 (21.7)
Gurage zone	1530	804 (52.6)	689 (45)	689 (85.7)	71 (10.3)
Hadiya zone	1750	456 (26.1)	219 (12.5)	219 (48)	21 (9.6)
k/Tembaro zone	775	87 (11.2)	70 (9)	70 (80.5)	8 (11.4)
Kaffa zone	815	182 (22.3)	175 (21.5)	175 (96.2)	26 (14.9)
Konso spec distr	139	45 (32.4)	45 (32.4)	45 (100)	4 (8.9)
Sheka spec distr	520	142 (27.3)	86 (16.5)	86 (60.7)	19 (22)
Sidama zone	3193	1128 (35.3)	932 (29.2)	932 (82.6)	182 (19.5)
Silte zone	918	128 (14)	56 (6.1)	56 (43.8)	6 (10.7)
South omo zone	305	76 (25)	76 (25)	76 (100)	4 (5.3)
Wolayita zone	2032	686 (33.8)	432 (21.3)	432 (63)	111 (25.7)
Yem spec distr	56	10 (17.9)	10 (17.9)	10 (100)	0
Region	**17581**	**5526 (31.4)**	**4141 (23.6)**	**4141 (75)**	**791 (19.1**

Table 2. shows the distribution of HIV counselling and prevalence by administrative region. There was marked variation among zones and special districts. Most of them offered HIV counselling information to less than 50% of the registered TB patients in their respective zones, except Alaba special district and Gurage zone with 56% and 52% respectively. This was more pronounced in Kembata, Bench Maji, Silte zones and Yem special district that offered HIV counselling to less than 20% of registered TB patients. Test uptake was relatively better, Dawuro, Gamo Gofa, Gedeo, Gurage, Kembata, Keffa, Konso Sidama, South Omo and Yem had 80% and above uptake rate, while Silte and Hadiya had the least test uptake rate in the region.

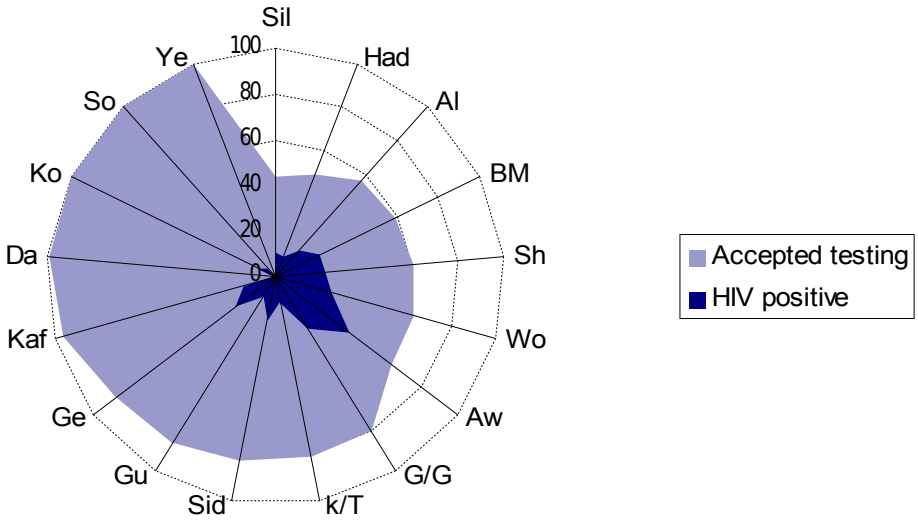


International boundary_____ Regional boundary_____ and Zonal boundary _____

Figure 1: Map of The Southern Nations Nationalities and Peoples' Region of Ethiopia showing the prevalence of HIV among tested TB patients per administrative divisions, 2007/8

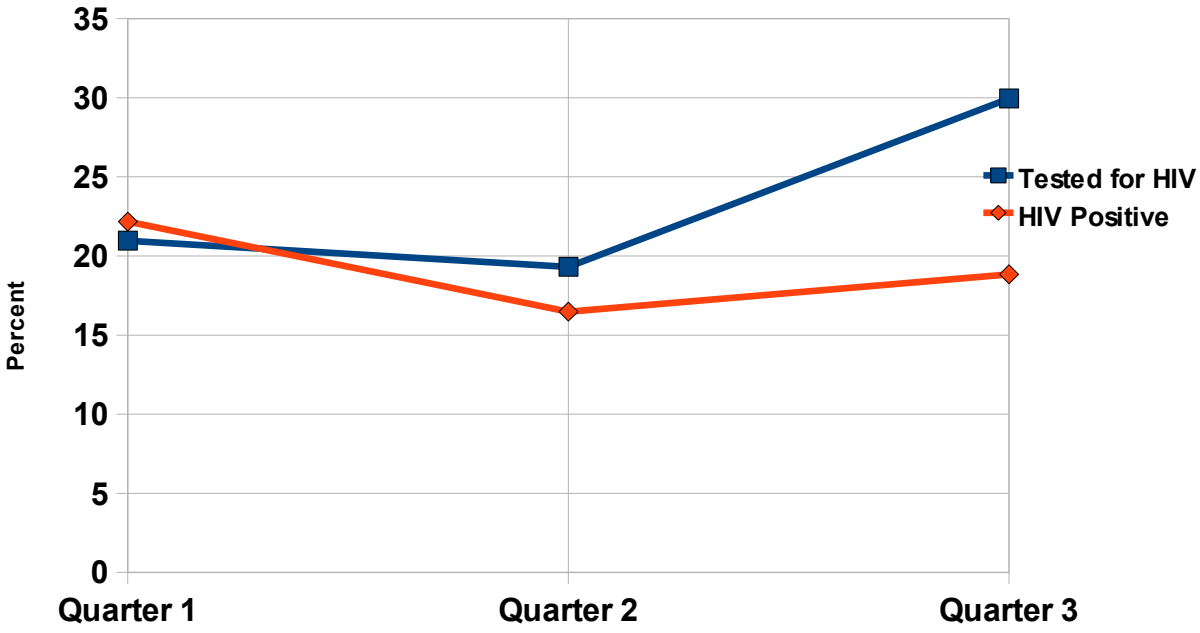
The prevalence of HIV among tested TB patients has also significant variations. Awassa had the highest (40%) HIV prevalence followed by Gamo Gofa (27.5%), Wolayita (25.7%), bench Maji (22.3%), Sheka (22.1%), and Gedeo (21.7%), whereas South Omo (5.3%) and Dawuro (1.3%) had the lowest prevalence. Individual facility performance and gender distribution is found in Table 8 & 9.

Graph 2. Test acceptance and HIV positive rates in SNNPR, 2007/8



Graph 2. Shows the relationship between test acceptance and HIV prevalence among TB patients by administrative division. In places with higher HIV prevalence less proportion of TB patients accept to be tested for HIV after pre test information than in places where the HIV prevalence among tested TB patients is low. In about 50% of the administrative regions test acceptance is ≥ 80 % with corresponding lower HIV prevalence, whereas in the rest half test acceptance is about less than 60% for most with higher HIV prevalence (20 – 40 %). However, there are also few administrative regions that have low test acceptance with low HIV prevalence and high test acceptance with high HIV prevalence.

Graph 3. Trend in HIV testing and HIV prevalence among registered TB patients in SNNPR, 2007/8



Graph 3. shows the quarterly trend in regional HIV testing and prevalence of HIV among TB patients tested for HIV. Availability of HIV testing shows marked increase from quarter one (21%) trough quarter three (30%), while the HIV prevalence decreases slightly from 22.2% to 18.8% as the number of patients tested increased. The majority of TB/HIV co-infected patients are in the age group 15 to 44, particularly in the age group 25 - 34 years, and few in the age group 0 - 14 years.

5.2.2. Provision of Cotrimoxazole and ART

Graph 4: Proportion of HIV positive TB patients offered CPT and ART in SNNPR, 2007/8

Of the total 791 HIV positive TB clients identified through HIV testing of TB patients in the region, 420 (53.1 %) were provided with CPT during their anti TB treatment, and 334 (42.2 %) were provided ART.

Table 3: Distribution of CPT and ARTprovision to TB/HIV co infected patients by adminstrative region, SNNPR, 2007/8

Zone/spec distr/town admin	TB/HIV positive, N	Cotrimoxazole, n (%)	ART, n (%)
Alaba spec distr	11	8 (72.7)	7 (63.6)
Awassa town admin	84	29 (34.5)	29 (34.5)
Bench/maji zone	25	12 (48)	20 (80)
Dawuro zone	1	0	1 (100)
G/Goffa zone	124	56 (45.2)	40 (32.3)
Gedeo zone	94	54 (57.5)	65 (69.2)
Gurage zone	71	38 (53.5)	18 (25.4)
Hadiya zone	21	17 (81)	3 (14.3)
k/Tembaro zone	8	7 (87.5)	6 (75)
Kaffa zone	26	22 (84.6)	14 (53.9)
Konso spec distr	4	2 (50)	4 (100)
Sheka spec distr	19	11 (57.9)	1 (5.3)
Sidama zone	182	55 (30.2)	111 (61)
Silte zone	6	4 (66.7)	3 (50)
South omo zone	4	4 (100)	0
Wolayita zone	111	101 (91)	39 (35.1)
Yem spec distr	0	0	0
Region	**791**	**420 (53.1)**	**334 (42.2)**

Table 3. shows the distribution of CPT and ART provision by administrative region. Few zones performed well. South Omo zone provided CPT to all TB/HIV co-infected patients followed by Wolayita (91%), Kembata (87.5%), Keffa (84.6%) and Hadiya (80.95) but the majority provided treatment to less than 80% of patients, with Sidama zone and Awassa town providing treatment to only 30.2% and 34.5% of co-infected patients respectively. Looking at the performance of individual facilities, 18 health facilities provided CPT to ≥ 80% of co infected patients; other hospitals such as Yirgalem, Awassa, Arbaminch and Mizan; and health centres like Arbaminch, Awassa, Yirgachefe, Bona, Tepi, Kerate and Areka provided CPT to less than 60% few proportion of TB/HIV co infected patients despite the high number of HIV positive patients they identified; however eight health facilities did not provide any (Table 10).

Table 4: Distribution of TB/HIV activity by type of facility in SNNPR, 2007/8

Characteristics	Hospital (n (%))	Health centre (n (%))	P - Value
Tested (uptake)	2363/2855 (82.8%)	1778/2671 (66.6%)	<0.00001
Positive (prevalence)	497/2363 (21%)	294/1778 (16.5%)	0.00026
CPT provision	277/497 (55.7%)	143/294 (48.6%)	0.0533
ART provision	225/497 (45.3%)	109/294 (37.1%)	0.0240

Table 4. shows the distribution of HIV counselling and testing, and provision of CPT and ART in the region by type of facility. More patients accepted testing for HIV after pretest information at hospitals (82.8%) than at the health centres (66.6%) in the region and the difference was statistically significant (p = <0.00001). The prevalence of HIV was markedly different between the two types of facilities, with HIV prevalence being higher in patients tested at the hospitals (21%) than those tested at the health centres (16.5%) (p = 0.00026). Similarly, more patients were provided ART at the hospitals (45.3%) than at the health centres (37.1%, p = 0.024), while the difference with regards to provision of CPT was borderline (p = 0.0533).

5.3. VCT clinic

5.3.1. HIV counselling and testing

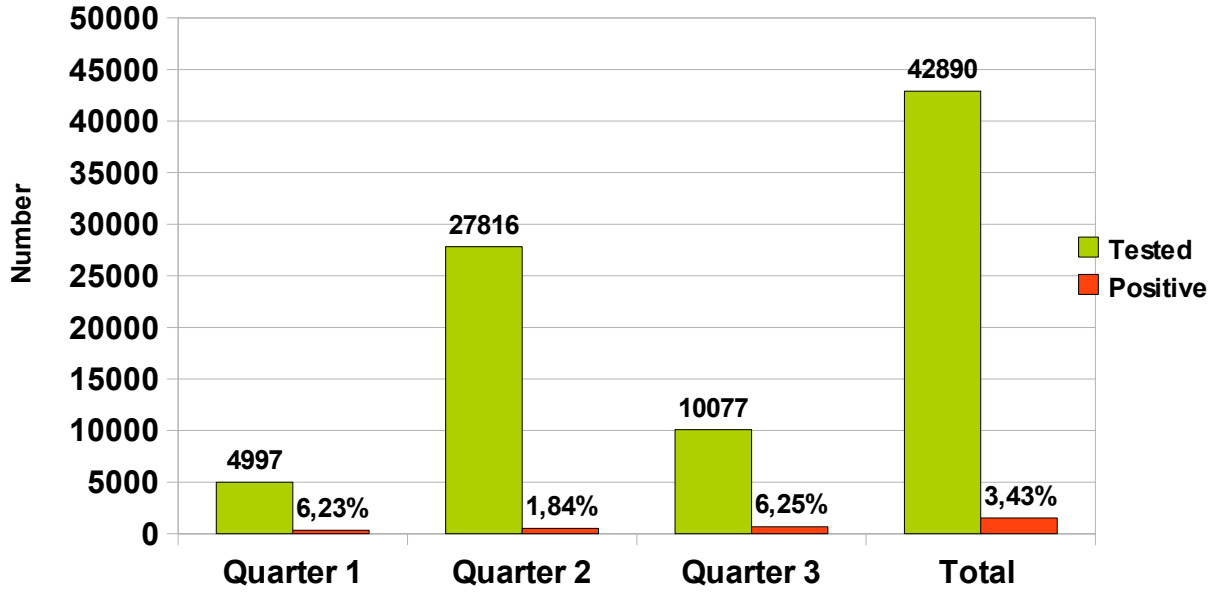
Table 5: HIV prevalence among VCT clients in SNNPR, 2007/8

Groups	Tested patients	HIV positive	Prevalence (95% CI)	P -value	Crude Prevalence Odds ratio
Male	24810	670	2.70 (2.49 - 2.90)	<0.0001	1
Female	18080	854	4.72 (4.41 - 5.03)		1.75 (1.63 - 1.86)
Total	42890	1524	3.55 (3.38 - 3.73)		-

A total of 42,890 clients come voluntarily for HIV counselling and testing at the VCT clinics in the three quarters in the region, of these 1524 (3.6%) tested HIV positive. HIV prevalence was significantly higher in females (4.7%) than males (2.7%) (1.75 (1.63 - 1.86), p = <0.0001).

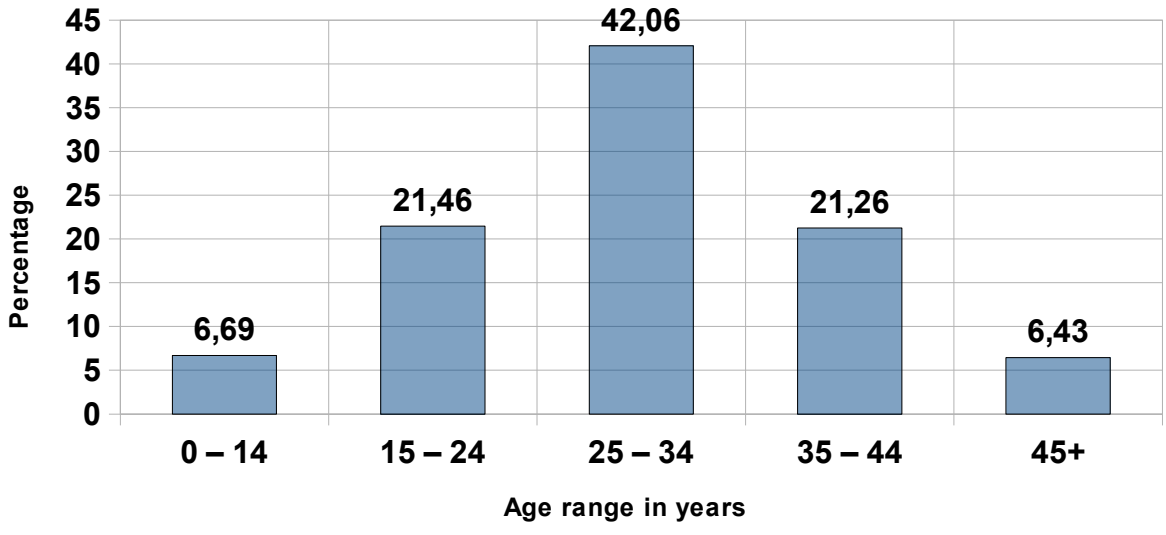
There was marked variation in HIV prevalence among VCT clients in different zones and districts. Awassa town had the highest HIV prevalence (20%) among VCT clients followed by Bench Maji (14.6%) and Gedeo (13%); Hadiya (1.7%), Dawuro (1.6%), Sidamo (0.6%) and Yem (0.2%) had the lowest. Compared to the number of clients tested, Sidama contributed to almost one third of the total VCT clients tested in the region, but had very low HIV prevalence. In all the zones and special districts, except Alaba special district, HIV prevalence was higher in females than males, and in some districts such as Keffa, Dawuro and Sheka they had up to three times higher HIV prevalence. Looking at individual health facilities, Areka health centre, Durame health centre, Awassa hospital, and Wolkite health centre have an alarmingly high HIV prevalence of 39%, 32.7%, 30.1% and 24 % among VCT clients respectively, followed by Awassa and Arbaminch health centres, Arbaminch and Dilla hospitals in order. Fufa health centre, Chencha hospital and all the health centres in Sidama zone, except Aletawondo, have the lowest HIV prevalence. Although the majority of VCT clients were tested by health centres, the prevalence of HIV among VCT clients was more than twice in those tested at hospitals (6.7%) than at health centres (2.5%) (Table 11).

Graph 5: Quarterly trend in HIV testing and prevalence among VCT clients in SNNPR, 2007/8



Graph 5. shows the quarterly uptake of HIV testing and HIV prevalence among VCT clients in the region. There was dramatic increase of VCT clients in the second quarter with very low HIV prevalence (1.8%) compared to other quarters. In the third quarter the VCT clients decreased, yet having doubled compared to quarter one, and with similar HIV prevalence of 6.3 and 6.2 % respectively.

Graph 6: Age distribution of HIV positive VCT clients in SNNPR, 2007/8



Graph 6. shows the age distribution of HIV positive VCT clients in the region. It follows a normal curve distribution, with the majority of HIV positive VCT clients in the age group 15 to 44, with the peak in the age group 25 - 34 years.

5.3.2. Active TB screening and IPT provision

From the above counselling and testing of VCT clients, it was possible to identify 1524 HIV positive clients in the region. Of these, 522 (34.2%) had undergone TB screening of whom 153 (27.1%) were diagnosed to have active TB, making the proportion of active TB patients identified through screening among the total HIV positive VCT clients to be 10%. Of the total 1524 HIV positive clients identified through VCT, only 65 (4.3%) were given IPT prophylaxis after active TB was ruled out.

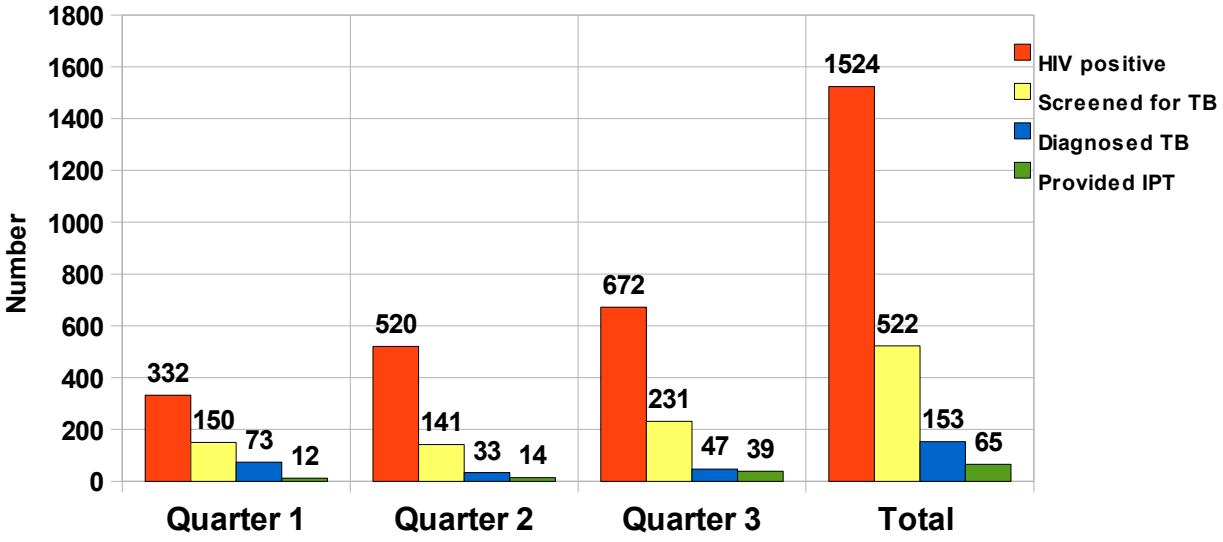
Table 6: Distribution of TB screening, and provision of IPT by administrative division in SNNPR, 2007/8

Zone/spec district/town admin	HIV positive clients, N	Screened for TB, n (%)	Diagnosed with TB of total screened, n (%)	Diagnosed with TB of total HIV positive, n (%)	Provided IPT of total HIV positive, n (%)
Awassa town a	182	33 (18.1)	8 (24.2)	8 (4.4)	7 (3.9)
G/Goffa	303	30 (10)	17 (56.7)	17 (5.6)	10 (3.3)
Gedeo	323	277 (85.8)	56 (20.2)	56 (17.3)	10 (3.1)
Gurage	106	39 (36.8)	37 (94.9)	37(35)	0
K/tembaro	84	67 (79.8)	6 (9)	6 (7.1)	23 (27.4)
Sidama	103	22 (21.4)	6 (27.2)	6 (5.8)	4 (3.9)
Wolayita	148	3 (2.)	2 (66.7)	2 (1.3)	1 (0.7)
Silte	41	25 (61)	15 (60)	15 (36.6)	7 (17.1)
Keffa	18	0	0	0	0
Hadiya	51	47 (92.2)	5 (10.6)	5 (9.8)	4 (7.8)
Dawro	12	5 (41.7)	3 (60)	3 (25)	0
Bench/Maji	21	7 (33.3)	0	0	0
Alaba sp distr	20	9 (45)	4 (44.4)	4 (20)	5 (25)
Konso sp distr	23	8 (34.8)	1 (12.5)	1 (4.4)	0
Sheka sp distr	135	5 (3.7)	2 (40)	2 (1.5)	2 (1.5)
Yem sp distr	5	1 (20)	0	0	1 (20)
Region total	**1524**	**522 (34.3)**	**153 (27.1)**	**153 (10)**	**65 (4.3)**

Table 6. shows the distribution of active TB screening and IPT provision at VCT clinics by administrative division. Hadiya, Gedeo and Kembata screened 92.2%, 85.8% and 80% of the identified HIV positive VCT clients respectively, whereas Wolayita, Sheka, Gamo Goffa, Awassa and Sidama screened 2%, 3.7%, 10%, 18.1% and 21.4% respectively. The proportion of active TB cases among all HIV positive clients identified from their respective VCT centres was higher in Silte (36.7%) and Gurage (35%) zones followed by Dawuro (25%), Alaba (20%) and Gedeo (17.3%). In general provision of IPT was very poor in most places, except Kembata and Alaba that provided IPT to 27% and 25% of all HIV positive clients identified from their VCT clinics. Others like Gedeo, Keffa, Dawuro,and Bench Maji zones, and Konso special district did not provide any IPT.

Almost all hospitals, except Hossana and Chencha, did not provide IPT and even these two did so to only a small proportion of the HIV positive VCT clients. Similarly, the majority of the health centres had not initiated providing IPT, except Durame, Wonago, Birbir, Shinshicho and Alaba health centres, that provided IPT to 88%, 50% and 50%, 25% and 25% of HIV positive VCT clients respectively (Table 12)

Graph 7: Quarterly trend in TB screening and IPT provision of HIV positive VCT clients in SNNPR, 2007/8



Graph 7. shows the quarterly trend in TB screening and provision of IPT for HIV positive VCT clients. Although the number of HIV positive clients identified from VCT clinics had continuously increased over the quarters to double in quarter three compared to quarter one, the practice of TB screening has not improved proportionally. The proportion of these clients screened for TB decreased from 45.2% in the first quarter to 34.4% in quarter three, with the lowest proportion in quarter two (27%). Similarly the proportion of HIV positive clients identified from VCT who were diagnosed to have active TB decreased by two thirds from 22% in the first quarter to 6.4% and 7% in the second and third quarters respectively. Provision of IPT has also been very low.

Table 7: Distribution of TB case finding and IPT provision by type of facility in SNNPR 2007/8

Characteristics	Hospital n (%)	Health centre n (%)	P – Value
HIV prevalence	716/10663 (6.71%)	808/32227 (2.51%)	<0.0001
Screened for TB	351/716 (49%)	171/808 (21.2%)	<0.0001
Diagnosed with TB	90/716 (12.6%)	63/808 (7.8%)	0.0019
Provided IPT	12/716 (1.7%)	53/808 (6.6%)	<0.0001

Hospitals screened a higher proportion of HIV positive VCT clients (49%) than health centres (21.2%) and the difference is statistically significant (p = <0.0001), and had a higher proportion of HIV positive VCT clients with active TB than health centres (12.6% vs.7.8%, p = 0.0019). However, a smaller proportion are given IPT compared to health centres (1.7% vs. 6.6%, p = <0.0001), but both are extremely insufficient.

6. Discussion

6.1. HIV testing of TB patients and provision of care and treatment

This study has clearly shown that TB/HIV services were inadequate in most of the health facilities. Despite the availability of TB diagnosis and DOT provision in all 194 health facilities (14 hospitals and 180 health centres), with VCT in 90 % and ART in 30% (FMOH, 2007a), only 48 (25%) of them initiated TB/HIV activity, and of these 84% also provided ART. This might have contributed only 31.4 % of registered TB patients having accessed HIV counselling. This was despite the presence of clear national guideline and policy to provide counselling and testing service to all TB patients (FMOH, 2007c). Similarly, of the 17,581 TB patients registered in the period, only 4141 (23.6%) were tested for HIV, although the rate increased over the three quarters from 21 % to 30 %,

but still far from the 80% national target by 2010 (FMOH, 2007f). It is possible that the real figures could be higher, because the quarterly TB/HIV reporting format captures only TB individuals offered counselling and not the TB patients who were already HIV positive at the time of TB diagnosis and those tested negative in the past three months at other sites; therefore, these patients were not included in the count, but contributed to the denominator, which, in addition, includes all newly registered TB patients, irrespective of previous HIV status. However, the performance here was far better than the national figure of 2.6 % of all notified TB patients tested for HIV in 2006 (WHO, 2008). A better performance was observed by similar routine level implementation in Kenya (59 %) and South Africa (45 %) (Chakaya, et al. 2008; Colin, et al, 2006).

Despite the low access to provider initiated testing and counselling services, the proportion of TB patients who accepted to be tested after pre test information was relatively better (75%) and higher than the 35% found in a previous study in one hospital in the same region, although screening test was not provided at the same TB clinic at the time of the study (Jerene, et al., 2007). It may be inferred that providing screening test at TB clinics in most of the health facilities might have contributed to improved uptake. The finding was also higher than the observed compliance to testing by TB patients after pretest information in Malawi (59%) under routine condition, although this happened earlier in 2003 (Chimzizi, et al., 2004). However, a higher proportion of TB patients accepted to be tested in a pilot program in a research setting in Congo (95 -97%) (Van Rie, 2008). The relatively better availability of ART and CPT at the period of this study compared to the previous years, when ART was not available or at its early phase, might also have contributed to improved compliance as a motivation factor, in addition to the effect of the wide scale social mobilization including community conversation as part of national comprehensive HIV/AIDS prevention, treatment and care scale up campaign called "Millennium AIDS campaign" conducted from November 2006 up to September 2008 throughout the country (FHAPCO, 2007).

Our study has also revealed marked variation among zones and special districts with respect to

access to counselling and testing services and compliance to testing after pre test counselling. Since understanding the level of client compliance to testing is an indicator of programme performance, though not specific (WHO, 2004a), this is an important observation to guide the regional, zonal/destrict and facility managers in better identifying both the problem and adapted solutions.. Therefore some zones like Hadiya and Silte will need close assessment to understand the underlying factors. We found that more TB patients accept to be tested at the hospitals (82.8%) than health centres (66.6%) ($p = 0.0001$). This could be explained by factors related to the health service (a relatively better trained and supervised nurses; perception of better service at hospitals by clients and relatively better access to supplies by hospitals) and/or people awareness of HIV/AIDS (which is higher in urban than rural settings (DHS, 2005)). There are also marked gender differences; women are less counselled and tested for HIV than males ($p = <0.00001$ and $p = 0.0059$, respectively), but significantly complied with HIV testing after pretest information than males ($p = 0.027$). Therefore interventions need to consider all these factors and be gender sensitive.

The prevalence of HIV among TB patients tested for HIV was 19.1% (95% CI 17.9 - 20.3) for the region. However, the reporting system may underestimate the real incidence, as the individuals already HIV positive are not captured here. For comparison, a hospital based study in SNNPR region showed that a quarter of TB patients had been tested before presentation at TB clinic and constituted two thirds of the HIV positive TB patients (Jerene, et al., 2007). The adult HIV prevalence in the region for the same year was estimated to be 1.4 % (FMOH, 2007b). Thus, the HIV prevalence in TB patient is about 14 times higher than that of the general population; this implies that we are fail to see a considerable number of HIV positive patients, especially those needing immediate care as they are also TB patients, because of the observed limited availability of counselling and testing services. This estimate is similar to the result of a previous TB/HIV survey that used anonymous testing in 2003 (Yassin, et al., 2004), and another similar study in 2005 (Datiko, et al., 2008) but slightly lower than an operational study done in one hospital with limited

sample size. Also higher rates were found in Addis Ababa (45.3 %) in 1988 (Demissie, et al., 2000) and are reported nationally (twice as high as our study finding) (WHO, 2008). Under similar routine conditions, a higher prevalence has been reported in Malawi (Chimzizi, et al., 2004), South Africa (Colin, et al, 2006) and Kenya (Chakaya, et al. 2008). Thus, our study showed that despite the improving change in the uptake of HIV testing which might be taken as a signal of an improving awareness of people towards HIV counselling and testing, the prevalence of HIV in those TB patients tested has still not declined compared to previous years. This finding is also in line with the HIV prevalence trend observed in the general population of the region (FMOH, 2007b). Taken together, the results of this study indicate that the effort to prevent and control HIV has not reached the desired outcome at the moment. Furthermore, one should consider the back log of patients not attending yet health facilities as well as the time required for change in peoples awareness about HIV. Although we are far from the WHO recommended level of 85 % testing which would allow a robust estimate of TB/HIV co infection rate using routine data (WHO, 2004c), our findings are useful from the programmatic point of view to design and implement a realistic solution in a country with scarce resource like ours.

As HIV testing rate and testing compliance (uptake) increased from 21 % to 30 % and from 65 % to 87 % respectively, HIV prevalence shows a slight decrease from 22.2 % to 18.8 %. It is possible that initial testing of TB patients may have targeted the most severe patients with other concomitant HIV related signs and symptoms. A similar pattern was observed in Kenya, where HIV prevalence among TB patients declined from ~60% when 31.5% of patients were tested to 55% when 59% were tested (Chakaya, et al. 2008). The prevalence of HIV has also shown marked variations between zones and health facilities. The interesting finding here is the pattern in HIV test uptake and prevalence in different administrative divisions, where those with high HIV prevalence had lower test acceptance than those with higher prevalence. This shows a major missed opportunity in detecting HIV positive TB patients in places where they are more prevalent, therefore these areas

needs close assessment and immediate corrective actions. The observation that the majority of HIV positive TB patients lie in the age group 25 - 34 years followed by 35 - 44 years, indicates that TB occurs late in the course of HIV infection, since the peak age distribution of HIV infection in the general population nationally is in ranking order 15 - 24, 25 - 34 and 35 - 44 years (DHS, 2005). The distribution is also similar to other local studies in SNNPR and Addis Ababa (Datiko, et al., 2008; Demissie, 2000), and in Kenya (Chakaya, et al. 2008).

There was no statistically significant difference in HIV prevalence among tested male and female TB patients, however the result could be affected by a selection bias as more males than females accessed HIV counselling and testing services ($p = 0.00001$ and $p = 0.00026$ respectively). This was contrary to previous studies in our setting (Jerene, et al., 2007; Yassin, et al., 2004) and the results of the single point estimate that combined both DHS and sentinel surveillance data, that demonstrated a higher prevalence of HIV among adult female than male in the region (1.7 % female, 1.2 % male) (FMOH, 2007b). It also differs from studies in other African countries (Chakaya, et al. 2008; Van Rie, et al., 2008). The above finding however could be explained by a recent observation that showed a reversed high rate of HIV/AIDS treatment and health seeking behaviour of females compared to males, as evidenced by a study that assess the utilization of ART in Ethiopia in 2006 (Kloos, 2007); more females might have accessed early ART treatment resulting in less presentation with TB.

Compared to health centres, TB patients who tested at hospitals had a higher HIV prevalence (21 % Vs 16.5 %). This is not surprising as HIV prevalence is higher in the urban areas compared to rural areas (FMOH, 2007b), and hospitals tend to be located in the urban/semi urban sites. The health system also requires each individual to start DOTS in a nearby health facility and health facilities to serve only their own catchment areas. However not all TB patients seen at the hospitals are urban residents.

While provision of CPT and ART to HIV infected TB patients during their TB treatment is known to prevent the progression of immunosuppression, improve treatment outcome, and prolongs the quality of life of people dually infected with TB and HIV (WHO, 2004b), only 420 (53.1 %) of the total 791 HIV positive TB received CPT and 334 (42.2 %) recevied ART during their TB treatment. Provision of CPT was lower than the 86% reported figure nationally in 2006 (WHO 2008). Paradoxically, it is possible that in the early years of expansion of TB/HIV programme activities sites were receiving relatively better support and closer follow up leading to a better performance. If this is the case, this is an alarm sign of a declining momentum and calls for corrective measures. Far better performance was observed in Kenya (85%) (Chakaya, et al. 2008) and Malawi (97%) (Chimzizi, et al., 2004) under routine program condition after national scale up. The fact that 84 % of the TB/HIV initiated facilities are providing ART services and the rest referring to their nearby health facilities, and in view of the fact that many patient present at the advanced stages of HIV requiring ART, the observation that 42 % of TB/HIV coinfected patients are provided with ART is not sufficient, but encouraging compared to the 27 % national figure in 2006 (WHO, 2008). It is also better than the findings from Kenya (28 %) and South Africa (30%) under similar conditions (Chakaya, et al. 2008; Colin, et al, 2006). However, the poor referral system TB clinics have with the nearby ART clinics in the same health facility and other health facilities might have lead some facilities to report referred individuals as if they were initiated ART, resulting in an over estimation of the real situation.

Provision of ART was significantly higher in the hospitals ($p = 0.024$) than health centres while the difference was borderline with respect to CPT provision ($p = 0.0533$), although hospitals have a slightly higher proportion of coinfected patients. This could reflect the expected limitation to manage TB/HIV patients with ART at the health centre level besides the fact that some health centres are not providing ART. The study has also shown a remarkable variation with regards to

provision of ART and CPT among zones, special districts and health facilities. In general, despite the fact that we are identifying a small fraction of TB/HIV coinfected patients in a setup where we have high coinfection rate, about half of these few identified TB/HIV patients are not benefiting from these life saving services (CPT and ART).

6.2. Active TB screening and provision of IPT

During the three quarters period, 42,890 clients were tested for HIV at the VCT clinics and the prevalence of HIV among these clients was 3.6% (CI 3.38 - 3.73). This was lower than the 6.4% prevalence among VCT clients for the region observed previously (FMOH, 2007a). However, the quarterly trend in HIV testing shows a marked increase than ever before, specially in the second quarter when it increased more than five times from quarter one. This could be a result of wide scale national counselling and testing campaign that dramatically increased the testing service access through the use of various social mobilization strategies, allowing outreach and mobile testing centres and strengthening the capacity of health facility based services to respond to the expected increase demand (FHAPCO, 2007). However, this could have lead to an underestimation of the HIV prevalence among VCT clients as a result of low HIV prevalence recorded in the second quarter despite the highest testing rate of all the quarters. Since the initial phase of the campaign targeted mainly the rural people, schools and market places in rural places through outreach program which are relatively low risk population (FHAPCO, 2007), compared to mainly urban/semi urban based previous routine VCT clients. However, it was of great benefit to the community in terms of HIV prevention.

Our study also showed a statistically significant difference in prevalence of HIV among females compared to males (4,7 % vs 2.7%), in line with the gender difference in the regional adult HIV prevalence (FMOH, 2007). Many reasons have been mentioned for this in SNNPR: lower level of knowledge among females than males, low women empowerment, early marriage, early initiation of sexual activities, and marriage to an older husband, besides the known biological differences

(DHS, 2005). Similarly, HIV prevalence among clients tested at hospitals (6.7%) was significantly higher than those tested at the health centres (2.5%, p=<0.001). This could be explained by a higher rate of HIV prevalence in the urban areas compared to rural areas (FMOH, 2007b), since many hospitals are located in the urban/semi urban sites. The age distribution of HIV positive clients shows that 42% are in the age group 25 - 34, while 6.7 % were under the age of 14. From experience in the clinical practice and supervisory visit in that region most of these clients could be under the age of 5 years. The HIV prevalence had also shown marked variations among zones/special districts and health facilities.

Despite the benefit of active TB screening among HIV positive clients, in a setup with generalized HIV epidemic and high TB burden like ours, current practice seemed unsatisfactory. Of the 1524 HIV positive clients identified through VCT, only one third (522) were screened for TB. This was higher than the figure observed in South Africa (16%) under similar routine condition (Colin, et al, 2006). As studies in this regard are lacking in our country, this will be an important observation as to what extent TB screening is been accessed by HIV clients under routine programme condition. Despite the low proportion of HIV clients screened for TB, the sites were able to diagnose 153 patients with active TB (29 % of those screened), which was equivalent to 10% of the total identified HIV positive patients. This was better than a previous observation in a prospective study in an urban setup in Addis Ababa that showed 7% yield (Shah, et al., 2009), 5% in Uganda under similar routine condition at VCT centres (Mugisha, et al., 2006), 4.9 % among gold miners in South Africa (Day, et al., 2006) and the 6.3% in South African protest pilot study sites (WHO, 2004d). Despite the observed high yield, trends in TB screening further showed a deteriorating performance. As the number of HIV positive clients identified through VCT increased the proportion being screened for TB showed a decreasing trend. According to the FMOH, the health system is unable to detect ~60% of prevalent TB cases in SNNPR (FMOH, 2007b). In view of this intensified TB case finding at VCT centre can help identify the above missed cases, therefore should be strengthened

and given due attention by the region.

Given the convincing data on the efficacy, proven feasibility and cost effectiveness of IPT in resource poor countries in addition to the WHO interim policy recommendation, TB preventive therapy has not been widely implemented (Churchyard, et al., 2007; WHO, 2004b). Our study observation is not far from this, as only 4.3 % of all HIV positive clients identified through VCT were offered IPT. No local study assessed this before, but much higher proportion was offered in South Africa and Uganda (Colin, et al, 2006; Mugisha, et al., 2006). A striking finding was the marked discrepancy between policy and practice in this regards. Although all hospitals were supposed to provide IPT and were also the first to initiate it compared to health centres, our study finding showed that almost all hospitals, except Hossana and Chencha, have not been providing IPT and even these two provided IPT to only a small proportion of the HIV positive VCT clients (1.7%). In contrast, some health centres reported better IPT provision (6.7%) and the difference was statistically significant, while majority of the health centres had not initiated yet.

There are many reasons that could explain the observed gap. First, the serious shortage of IPT nationally could have lead to a detrimental effect on the performance of IPT provision. It also affects TB screening as some health professionals wrongly associate the objective of active TB screening practice merely for evaluating HIV patients for IPT provision and stop active TB screening when they run out of INH. However apart from TB prevention by providing INH, TB screening plays a major role for TB case finding and improve the quality of life of HIV positive TB patients by treating TB, reducing the occurrence of immune reconstitution syndrome and minimizing drug interaction with early stabilization of TB patient before initiating ARV. The above misconception needs to be thought clearly to health care providers. Second, until recently, the regional health bureau has not pushed health centres to widely initiate IPT for fear of IPT resistance that might result from low capacity to rule-out TB at the health centre level despite the national

policy and guideline. This could have affected the coverage of IPT provision in the region, having in mind the shortage of IPT. Evidence from a study in Addis Ababa, however, witnessed the high specificity (83%) of simple screening techniques recommended by current national guideline to rule out TB (Shah, et al., 2009). Similarly in Cape Town, a simple screening instrument of two or more of the symptoms measured weight loss, cough, night sweats or fever, had a sensitivity of 100% and specificity of 88% (Mohammed, et al., 2004). However, there is some criticism of the WHO recommendation for not including other advanced diagnostic techniques like sputum culture, thus potentially missing a significant number of subclinical active TB cases in HIV clients (Mtei, et al., 2005), or chest x-ray which proved to increase the sensitivity of TB screening in Gold miners in South Africa (Day, et al., 2006). Lastly, the fact that information regarding TB screening and IPT provision is collected from two clinics (VCT and ART clinics) could have affected the data quality and further compromising the observed figures, as a result of poor referral system. Our study has also observed discrepancies and incomplete or no reports by many facilities, and points to weakness of HIV programme particularly in the recording and reporting system, in line with global findings (Gunneberg, 2008). Therefore there is a need to improve the collaboration of TB/HIV activity with special emphasis to HIV/AIDS program side.

6.3 Limitations of the study

This study has limitations. First, since we analysed the data base retrospectively it was difficult to ensure quality of services provided such as whether TB screening and HIV counselling and testing was done as per national guidelines, whether provision of drugs (HAART, CPT and IPT) followed national guidelines, adequacy of drugs, logistics and health personnels; whether or not all clients received their test result, whether there was regular quality control for AFB and HIV test (internal and external) and use of SOPs; whether there was interruption of services, and adherence and adequacy of follow up. All these are relevant to explain many of the findings and would give a more comprehensive picture of the program. Second, it was difficult to ensure the quality of data. There were incomplete data, missing data and inconsistent figures, more from the HIV side than the TB

side. The other limitation of retrospective analysis of already collected data is that it is not possible to include variables that would give useful information to answer the study question and analyze findings; therefore we were limited to use the existing information. In addition, the data set lacks important variables such as: newly registered TB patients in each facilities; TB patients already HIV positive at the time of TB diagnosis and those tested in the past three months with negative results, all these might have significantly affected the estimate of HIV prevalence and availability of these services. Similarly, it doesn't differentiate between patients that were already started CPT and/or ART after previous HIV diagnosis but who come for DOT initiation, from those diagnosed with HIV at the TB clinics and afterwards initiated CPT and or ART, and does not differentiate VCT clients screened for TB with respect to HIV status, while it does for VCT clients referred for TB screening. The data also lacks important information as to what happened to those HIV positive VCT clients that were not diagnosed TB or not ruled out TB, clients eligible for IPT/CPT/ART but not started; and reasons for these as well as their treatment outcomes. Finally, the presence of participation bias cannot be ruled out and this together with low service availability may affect our study findings and limits its use as a robust estimate of HIV surveillance among TB patients**.**

7. Conclusions and Key findings

- TB/HIV services were inadequate in most of the health facilities.
- Although HIV testing rate of TB patients increased over the three quarters it is still far from the national target
- Despite low access to provider initiated testing and counselling services, the proportion of TB patients who complied to be tested after pre test information was relatively better (75%)
- More TB patients accept to be tested at the hospitals (82.8%) than health centres (66.6%)
- The prevalence of HIV among TB patients tested for HIV was 19.1% (95% CI 17.9 - 20.3) for the region, and has not declined compared to previous years

- In administrative regions where they have higher HIV prevalence among tested TB patients the test acceptability after pre-test information is lower than those with lower HIV prevalence
- There was no statistically significant difference in HIV prevalence among tested male and female TB patients, however the result could be affected by a selection bias
- Relatively better proportion of HIV positive TB patients were provided ART (42.2%) during their TB treatment, while provision of CPT was not satisfactory (53.1%).
- Provision of ART was significantly higher at the hospitals than at the health centres, while the difference was borderline with respect to CPT provision
- Only one third of HIV positive VCT clients were screened for TB, however 10% of the total HIV positive VCT clients were diagnosed with active TB (29 % of those screened with TB)
- Hospitals screened significantly higher proportion of HIV positive VCT clients for TB (49%) than health centres (21.2%)
- Only few (4.3 %) of all HIV positive clients identified through VCT were offered IPT
- Almost all hospitals, except Hossana and Chencha, have not been providing IPT and the majority of the health centres had not initiated.
- Marked variations are observed with respect to all the above findings between zones/special districts/town administration and health facilities.
- Poor recording and reporting was observed by many facilities
- The TB/HIV quarterly reporting format lacks important information that would provide more precise estimation and explanation of some of the observed findings thus allowing a more accurate assessment of the programme performance.

8. Recommendations

- There is urgent need to expand TB/HIV services to health facilities in the region
- There is a need to improve the capacity of health centres to initiate and efficiently implement TB/HIV activities ; specific intervention strategies need to be designed for communities served by them to improve acceptance of testing
- Regular monitoring and evaluation, and technical support is required to facilities which have already initiated the programme
- The quarterly TB/HIV reporting format should be modified, and the quality of recording and reporting system should be improved especially for the HIV side
- A study is needed to identify the reasons for low service provision and differences among administrative divisions
- TB/HIV interventions and resource allocations need to consider the observed variations in accessibility, test acceptance and HIV prevalence by different administrative divisions in the region

9. Glossary

ART: .....Antiretroviral Therapy

CPT: .....Cotrimoxazol Preventive Therapy

FMOH: .....Federal Ministry of Health

FHAPCO…...Federal HIV/AIDS Prevention and Control Office

HAART: .....Highly Active Antiretroviral Therapy

PITC……..Provider initiated Testing and Counselling

SNNPR: .....Southern Nations, Nationalities and Peoples Region

TB: .....Tuberculosis

VCT: .....Voluntary Counseling and Testing

WHO: .....World Health Organization

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Annex 1.

Table 8: HIV testing and prevalence among TB patients by facility and adminstrative division, SNNPR, 2007/8

Zone/sp distr/town admin	Name of facility	counceled for HIV N	tested for HIV n (%)	HIV positive n (%)
Alaba spec distr	Alaba H/C	**123**	**69 (56.1)**	**11 (16)**
	Awassa H/C	231	135 (58.4)	55 (40.7)
Awassa town	Awassa Hosp	97	74 (76.3)	29 (39.2)
admin	**Sub total**	**328**	**209 (63.7)**	**84 (40.2)**
	Mizan H/C	88	19 (21.6)	7 (36.8)
	Mizan Hosp	102	93 (91.2)	18 (19.4)
Bench/maji	**Sub total**	**190**	**112 (59)**	**25 (22.3)**
Dawuro zone	Tercha Hosp	**78**	**77 (98.7)**	**1 (1.3)**
	Arbaminch H/C	119	52 (43.7)	20 (38.5)
	Arbaminch Hosp	193	195 (101	68 (34.9)
	Birbir H/C	7	4 (57.1)	1 (25)
	Chencha Hosp	125	125 (100)	26 (20.8)
	Sawla H/C	83	41 (49.4)	5 (12.2)
	Selamber H/C	40	34 (85)	4 (11.8)
G/Goffa zone	**Sub total**	**567**	**451 (79.5)**	**124 (27.5)**
	Dilla Hosp	344	313 (91)	66 (21.1)
	Wonago H/C	43	27 (62.8)	2 (7.4)
	Yirgachefe H/C	109	93 (85.3)	26 (28)
Gedeo zone	**Sub total**	**496**	**433 (87.3)**	**94 (21.7)**
	Atat Hosp	220	162 (73.6)	22 (13.6)
	Buee H/C	91	60 (66)	3 (5)
	Butajera Hosp	27	7 (26)	3 (42.9)
	Cheha H/C	254	250 (98.4)	25 (10)
	Miskan H/C	145	143 (98.6)	2 (1.4)
	Wolkete H/C	67	67 (100)	16 (23.9)
Gurage zone	**Sub total**	**804**	**689 (85.7)**	**71 (10.3)**
Hadiya zone	Hosaena Hosp	**456**	**219 (48)**	**21 (9.6)**
	Durama H/C	55	45 (81.8)	3 (6.7)
	Shinshicho H/C	32	25 (78.1)	5 (20)
k/Tembaro zone	**Sub total**	**87**	**70 (80.5)**	**8 (11.4)**
Kaffa zone	Bonga Hosp	**182**	**175 (96.2)**	**26 (14.9)**
Konso spec distr	Karate H/C	**45**	**45 (100)**	**4 (8.9)**
Sheka spec distr	Tepi H/C	**142**	**86 (60.6)**	**19 (22.1)**
	Aleta wondo/H/c	68	54 (79.4)	8 (14.8)
	Bona H/C	11	11 (100)	13 (118.2)
	Chuko H/C	19	2 (10.5)	1 (50)
	Dore bafano H/C	25	25 (100)	0
	Ieku H/C	142	88 (62)	11 (12.5)
	Melga H/C	39	26 (66.7)	1 (3.9)
	Tulla H/C	3	3 (100)	0
	Wondogenet H/C	116	115 (99.1)	12 (10.4)
	Yirgalem H/C	11	11 (100)	11 (100)
	Yirgalem Hosp	694	597 (86)	125 (21)
Sidama zone	**Sub total**	**1128**	**932 (82.6)**	**182 (19.5)**
	Dalocha H/C	84	32 (38.1)	4 (12.5)
	kebete H/C	44	24 (54.6)	2 (8.3)
Silte zone	**Sub total**	**128**	**56 (43.8)**	**6 (10.7)**
South omo zone	Jinka Hosp	**76**	**76 (100)**	**4 (5.3)**
	Areka H/C	41	17 (41.5)	7 (41.2)
	Bele H/C	28	17 (60.7)	3 (17.6)
	Boditi H/C	72	30 (41.7)	5 (16.7)
	Soddo H/C	263	98 (37.3)	5 (5.1)
	Soddo Hosp	261	250 (95.8)	88 (35.2)
	Tome H/C	21	20 (95.2)	3 (15)
Wolayita zone	**Sub total**	**686**	**432 (63)**	**111 (25.7)**
Yem spec distr	Fufa H/C	**10**	**10 (100)**	**0**
Region	**Total**	**5526**	**4141 (74,94)**	**791 (19,10)**

Table 9: Distribution of HIV testing and HIV prevalence among TB patients by gender, facility and geographic area , SNNPR, 2007

Zone/spec district/city admin	Name of health facility	Male			Female		
		Counselled N	Tested n (%)	HIV positive n (%)	Counselled N	Tested n (%)	HIV positive n (%)
Alaba	Alaba H/C	**64**	**35 (54.7)**	**6 (17.1)**	**59**	**34 (57.6)**	**5 (14.7)**
	Awassa H/C	138	78 (56.5)	26 (33.3)	93	57 (61.3)	29 (50.9)
	Awassa Hosp	63	53 (84.1)	18 (34)	34	21 (61.8)	11 (52.4)
Awassa	**Sub total**	**201**	**131 (65.2)**	**44 (33.6)**	**127**	**78 (61.4)**	**40 (51.3)**
	Mizan H/C	53	10 (18.9)	4 (40)	35	9 (25.7)	3 (33.3)
	Mizan Hosp	52	49 (94.2)	4 (8.2)	50	44 (88)	14 (31.8)
Bench/maji	**Sub total**	**105**	**59 (56.2)**	**8 (13.6)**	**85**	**53 (62.4)**	**17 (32.1)**
Dawuro	Tercha Hosp	**45**	**45 (100)**	**1 (2.2)**	**33**	**32 (97)**	**0**
	Arbaminch H/C	75	33 (44)	12 (36.4)	44	19 (43.2)	8 (42.1)
	Arbaminch Hos	109	119 (109.2)	43 (36.1)	84	76 (90.5)	25 (32.9)
	Birbir H/C	5	3 (60)	1 (33.3)	2	1 (50)	0
	Chencha Hosp	78	78 (100)	15 (19.2)	47	47 (100)	11 (23.4)
	Sawla H/C	41	16 (39)	4 (25)	42	25 (59.5)	1 (4)
	Selamber H/C	21	20 (95.2)	1 (5)	19	14 (73.7)	3 (21.4)
G/Goffa	**Sub total**	**329**	**269 (81.8)**	**76 (28.3)**	**238**	**182 (76.5)**	**48 (26.4)**
	Dilla Hosp	184	181 (98.4)	36 (20)	160	132 (82.5)	30 (22.7)
	Wonago H/C	26	16 (61.5)	2 (12.5)	17	11 (64.7)	0
	Yirgachefe H/C	61	53 (87)	12 (22.6)	48	40 (83.3)	14 (35)
Gedeo	**Sub total**	**271**	**250 (92.3)**	**50 (20)**	**225**	**183 (81.3)**	**44 (24.1)**
	Atat Hosp	124	86 (69.4)	12 (14)	96	76 (79.2)	10 (13.2)
	Buee H/C	43	24 (55.8)	1 (4.2)	48	36 (75)	2 (5.6)
	Butajera Hosp	19	5 (26.3)	2 (40)	8	2 (25)	1 (50)
	Cheha H/C	129	127 (98.5)	9 (7.1)	125	123 (98.4)	16 (13)
	Miskan H/C	65	64 (98.5)	1 (1.6)	80	79 (98.8)	1 (1.3)
	Wolkete H/C	35	35 (100)	5 (14.3)	32	32 (100)	11 (34.4)
Gurage	**Sub total**	**415**	**341 (82.2)**	**30 (8.8)**	**389**	**348 (89.5)**	**41 (11.8)**
Hadiya	Hosaena Hosp	**309**	**117 (37.9)**	**13 (11.1)**	**147**	**102 (69.4)**	**8 (7.8)**
	Durama H/C	37	27 (73)	2 (7.4)	18	18 (100)	1 (5.6)
	Shinshicho H/C	17	13 (76.5)	1 (7.7)	15	12 (80)	4 (33.3)
k/Tembaro	**Sub total**	**54**	**40 (74.1)**	**3 (7.5)**	**33**	**30 (90.9)**	**5 (16.7)**
Kaffa	Bonga Hosp	**82**	**78 (95.1)**	**12 (15.4)**	**100**	**97 (97)**	**14 (14.4)**
Konso	Karate H/C	**28**	**28 (100)**	**1 (3.6)**	**17**	**17 (100)**	**3 (17.6)**
Sheka	Tepi H/C	**81**	**44 (54.3)**	**9 (20.5)**	**61**	**42 (68.9)**	**10 (23.8)**
	AletawondoH/C	36	29 (80.6)	5 (17.3)	32	25 (78.1)	3 (12)
	Bona H/C	6	6 (100)	7 (116.7)	5	5 (100)	6 (120)
	Chuko H/C	12	2 (16.7)	0	7	0	1
	Dore bafano H/	6	6 (100)	0	19	19 (100)	0
	Ieku H/C	70	44 (62.9)	4 (9.1)	72	44 (61.1)	7 (16)
	Melga H/C	25	19 (76)	1 (5.3)	14	7 (50)	0
	Tulla H/C	2	2 (100)	0	1	1 (100)	0
	Wondogenet H	70	69 (98.6)	7 (10.1)	46	46 (100)	5 (10.9)
	Yirgalem H/C	2	2 (100)	2 (100)	9	9 (100)	9 (100)
	Yirgalem Hosp	389	335 (86.1)	66 (19.7)	305	262 (85.9)	59 (22.5)
Sidama	**Sub total**	**618**	**514 (83.2)**	**92 (17.9)**	**510**	**418 (82)**	**90 (21.5)**
	Dalocha H/C	32	16 (50)	1 (6.3)	52	16 (30.8)	3 (18.8)
	kebete H/C	24	14 (58.3)	1 (7.1)	20	10 (50)	1 (10)
Silte	**Sub total**	**56**	**30 (53.6)**	**2 (6.7)**	**72**	**26 (36.1)**	**4 (15.4)**
South omo	Jinka Hosp	**62**	**62 (100)**	**2 (3.2)**	**14**	**14 (100)**	**2 (14.3)**
	Areka H/C	31	12 (38.7)	5 (41.7)	10	5 (50)	2 (40)
	Bele H/C	18	12 (66.7)	3 (25)	10	5 (50)	0
	Boditi H/C	51	26 (51)	5 (19.2)	21	4 (19.1)	0
	Soddo H/C	133	51 (38.4)	2 (4)	130	47 (36.2)	3 (6.4)
	Soddo Hosp	156	147 (94.2)	52 (35.4)	105	103 (98.1)	36 (35)
	Tome H/C	12	11(91.7)	3 (27.3)	9	9 (100)	0
Wolayita	**Sub total**	**401**	**259 (64.6)**	**70 (27)**	**285**	**173 (60.7)**	**41 (23.7)**
Yem	Fufa H/C	**6**	**6 (100)**	**0**	**4**	**4 (100)**	**0**
Region	**Total**	**3127**	**2308 (73.8)**	**419 (18.2)**	**2399**	**1833 (76.4)**	**372 (20.3)**

Table 10: Distribution of CPT and ART provision by facility and adminstrative region in SNNPR, 2007/8

distr/town admin	site	TB/HIV positive N	Cotrimoxazole n (%)	ART n (%)
Alaba	Alaba H/C	**11**	**8 (72.7)**	**7 (63.6)**
	Awassa H/C	55	14 (25.5)	24 (43.6)
	Awassa Hosp	29	15 (51.7)	5 (17.2)
Awassa	**Sub total**	**84**	**29 (34.5)**	**29 (34,5)**
	Mizan H/C	7	7 (100)	5 (71.4)
	Mizan Hosp	18	5 (27.8)	15 (83.3)
Bench/maji	**Sub total**	**25**	**12 (48)**	**20 (80)**
Dawuro	Tercha Hosp	**1**	**0**	**1 (100)**
	Arbaminch H/C	20	2 (10)	5 (25)
	Arbaminch Hosp	68	25 (36.8)	9 (13.2)
	Birbir H/C	1	1 (100)	1 (100)
	Chencha Hosp	26	22 (84.6)	21 (80.8)
	Sawla H/C	5	3 (60)	2 (40)
	Selamber H/C	4	3 (75)	2 (50)
G/Goffa	**Sub total**	**124**	**56 (45.2)**	**40 (32.3)**
	Dilla Hosp	66	49 (74.2)	59 (89.4)
	Wonago H/C	2	2 (100)	2 (100)
	Yirgachefe H/C	26	3 (11.5)	4 (15.4)
Gedeo	**Sub total**	**94**	**54 (57.45)**	**65 (69.2)**
	Atat Hosp	22	0	0
	Buee H/C	3	2 (66.7)	0
	Butajera Hosp	3	3 (100)	0
	Cheha H/C	25	25 (100)	12 (48)
	Miskan H/C	2	2 (100)	0
	Wolkete H/C	16	6 (37.5)	6 (37.5)
Gurage	**Sub total**	**71**	**38 (53.5)**	**18 (25.4)**
Hadiya	Hosaena Hosp	**21**	**17 (81)**	**3 (14.3)**
	Durama H/C	3	3 (100)	1 (33.3)
	Shinshicho H/C	5	4 (80)	5 (100)
k/Tembaro	**Sub total**	**8**	**7 (87.5)**	**6 (75)**
Kaffa	Bonga Hosp	**26**	**22 (84.6)**	**14 (53.9)**
Konso	Karate H/C	**4**	**2 (50)**	**4 (100)**
Sheka	Tepi H/C	**19**	**11 (57.9)**	**1 (5.3)**
	Aleta wondo/H/c	8	0	8 (100)
	Bona H/C	13	2 (15.4)	4 (30.8)
	Chuko H/C	1	0	0
	Dore bafano H/C	0	0	0
	leku H/C	11	11 (100)	0
	Melga H/C	1	0	1 (100)
	Tulla H/C	0	0	0
	Wondogenet H/C	12	15 (125)	0
	Yirgalem H/C	11	0	0
	Yirgalem Hosp	125	27 (21,6)	98 (78.4)
Sidama	**Sub total**	**182**	**55 (30.2)**	**111 (61)**
	Dalocha H/C	4	4 (100)	2 (50)
	kebete H/C	2	0	1 (50)
Silte	**Sub total**	**6**	**4 (66.7)**	**3 (50)**
South omo	Jinka Hosp	**4**	**4 (100)**	**0**
	Areka H/C	7	2 (28.6)	5 (71.4)
	Bele H/C	3	3 (100)	2 (66.7)
	Boditi H/C	5	0	0
	Soddo H/C	5	5 (100)	4 (80)
	Soddo Hosp	88	88 (100)	0
	Tome H/C	3	3 (100)	1 (33.3)
Wolayita	**Sub total**	**111**	**101 (91)**	**39 (35.2)**
Yem	Fufa H/C	**0**	**0**	**0**
Total Result		**791**	**420 (53.1)**	**334 (42.2)**

Table 11: Distribution of HIV prevalence among VCT clients by gender and administrative division in SNNPR, 2007/8

Zone/ Spec distr/town admin	Site name	Male		Female		Total	
		Tested, N	HIV +, n (%)	Tested, N	HIV +, n (%)	Tested, N	HIV +, n (%)
Alaba	Alaba H/C	**155**	**13 (8.4)**	**137**	**7 (5.1)**	**292**	**20 (6.9)**
	Awassa H/C	300	47 (15.7)	340	61 (17.9)	640	108 (16.9)
	Awassa Hosp	136	32 (23.5)	110	42 (38.2)	246	74 (30.1)
Awassa	**Sub total**	**436**	**79 (18.1)**	**450**	**103 (22.8)**	**886**	**182 (20.5)**
Bench/maji	Mizan H/C	**60**	**8 (13.3)**	**84**	**13 (15.5)**	**144**	**21 (14.6)**
Dawuro	Tercha Hosp	**513**	**4 (0.8)**	**257**	**8 (3.1)**	**770**	**12 (1.6)**
	Arbaminch H/C	75	12 (16)	44	8 (18.2)	119	20 (16.8)
	Arbaminch Ho	615	84 (13.7)	553	109 (19.7)	1168	193 (16.5)
	Birbir H/C	111	1 (0.9)	85	3 (3.5)	196	4 (2)
	Chencha Hosp	1490	22 (1.5)	925	20 (2.2)	2415	42 (1.7)
	Sawla H/C	649	13 (2)	618	16 (2.6)	1267	29 (2.3)
	Selamber H/C	909	7 (0.8)	494	8 (1.6)	1403	15 (1.1)
G/Goffa	**Sub total**	**3849**	**139 (3.6)**	**2719**	**164 (6)**	**6568**	**303 (4.6)**
	Dilla Hosp	949	97 (10.2)	879	165 (18.8)	1828	262 (14.3)
	Wonago H/C	139	11 (7.9)	116	9 (7.8)	255	20 (7.8)
	Yirgachefe H/C	204	13 (6.4)	195	28 (14.4)	399	41 (10.3)
Gedeo	**Sub total**	**1292**	**121 (9.4)**	**1190**	**202 (17)**	**2482**	**323 (13)**
	Atat Hosp	316	20 (6.3)	317	26 (8.2)	633	46 (7.3)
	Buee H/C	168	13 (7.7)	160	7 (4.4)	328	20 (6.1)
	Butajera Hosp	141	9 (6.3)	140	9 (6.4)	281	18 (6.4)
	Miskan H/C	76	3 (4)	78	3 (3.9)	154	6 (3.9)
	Wolketa H/C	35	5 (14.3)	32	11 (34.4)	67	16 (23.9)
Gurage	**Sub total**	**736**	**50 (6.8)**	**727**	**56 (7.7)**	**1463**	**106 (7.3)**
Hadiya	Hosaena Hosp	**1745**	**23 (1.3)**	**1302**	**28 (2.2)**	**3047**	**51 (1.7)**
	Durame H/C	29	11 (38)	23	6 (26.1)	52	17 (32.7)
	Shinshicho H/C	211	7 (3.3)	172	9 (5.2)	383	16 (4.2)
k/Tembaro	**Sub total**	**240**	**18 (7.5)**	**195**	**15 (7.7)**	**435**	**33 (7.6)**
Kaffa	Bonga Hosp	**136**	**5 (3.7)**	**139**	**13 (9.4)**	**275**	**18 (6.6)**
Konso	Karate H/C	**588**	**11 (1.9)**	**549**	**12 (2.2)**	**1137**	**23 (2)**
Sheka	Tepi H/C	**1264**	**49 (3.9)**	**995**	**86 (8.6)**	**2259**	**135 (6)**
	Aleta wondo/H	100	7 (7)	82	6 (7.3)	182	13 (7.1)
	Bona H/C	4343	23 (0.5)	2313	12 (0.5)	6656	35 (0.5)
	Chuko H/C	1074	9 (0.8)	698	7(1)	1772	16 (0.9)
	Dore bafano H/	22	1 (4.6)	39	0	61	1 (1.6)
	Melga H/C	4399	17 (0.4)	2984	18 (0.6)	7383	35 (0.5)
	Wondogenet h	382	1 (0.3)	226	2 (0.9)	608	3 (0.5)
	Yirgalem H/C	2	0	9	0	11	0
Sidama	**Sub total**	**10322**	**58 (0.6)**	**6351**	**45 (0.7)**	**16673**	**103 (0.6)**
Silte	Dalocha H/C	**964**	**22 (2.3)**	**827**	**19 (2.3)**	**1791**	**41 (2.3)**
	Areka H/C	13	5 (38.5)	5	2 (40)	18	7 (38.9)
	Bele H/C	241	18 (7.5)	293	16 (5.5)	534	34 (6.4)
	Boditi H/C	49	3 (6.1)	1	0	50	3 (6)
	Soddo H/C	621	38 (6.1)	619	60 (9.7)	1240	98 (8)
	Tome H/C	157	4 (2.6)	66	2 (3)	223	6 (2.7)
Wolayita	**Sub total**	**1081**	**68 (6.3)**	**984**	**80 (8.1)**	**2065**	**148 (7.2)**
Yem	Fufa H/C	**1429**	**2 (0.14)**	**1174**	**3 (0.26)**	**2603**	**5 (0.19)**
Total Result		**24810**	**670 (2.7)**	**18080**	**854 (4.72)**	**42890**	**1524 (3.55)**

Table 12: Distribution of TB screening and IPT provision among HIV positive VCT clients by facility in SNNPR, 2007/8

Zone/spec district/town admin	Facility name	HIV positive clients, N	Screened for TB, n (%)	Diagnosed with TB of total screened, n (%)	Diagnosed with TB of total HIV positive, n (%)	Provided IPT of total HIV positive, n (%)
Alaba	Alaba H/C	**20**	**9 (45)**	**4 (44.4)**	**4 (20)**	**5 (25)**
	Awassa H/C	108	24 (22.2)	4 (16.7)	4 (3.7)	2 (1.9)
	Awassa Hosp	74	0	0	0	0
Awassa	**Sub total**	**182**	**33 (18.1)**	**8 (24.3)**	**8 (4.4)**	**7 (3.9)**
Bench/maji	Mizan H/C	**21**	**7 (33.3)**	**0**	**0**	**0**
Dawuro	Tercha Hosp	**12**	**5 (41.7)**	**3 (60)**	**3 (25)**	**0**
	Arbaminch H/C	20	7 (35)	7 (100)	7 (35)	(empty)
	Arbaminch Hosp	193	0	0	0	0
	Birbir H/C	4	0	1	1 (25)	2 (50)
	Chencha Hosp	42	12 (28.6)	4 (33.3)	4 (9.5)	8 (19.1)
	Sawla H/C	29	1 (3.5)	1 (100)	1 (3.5)	(empty)
	Selamber H/C	15	10 (66.7)	4 (40)	4 (26.7)	(empty)
G/Goffa	**Sub total**	**303**	**30 (9.9)**	**17 (56.7)**	**17 (5.6)**	**10 (3.3)**
	Dilla Hosp	262	262 (100)	53 (20.2)	53 (20.2)	0
	Wonago H/C	20	15 (75)	3 (20)	3 (15)	10 (50)
	Yirgachefe H/C	41	0	0	0	(empty)
Gedeo	**Sub total**	**323**	**277 (85.8)**	**56 (20.2)**	**56 (17.3)**	**10 (3.1)**
	Atat Hosp	46	22 (47.8)	22 (100)	22 (47.8)	0
	Buee H/C	20	2 (10)	0	0	(empty)
	Butajera Hospital	18	3 (16.7)	3 (100)	3 (16.7)	0
	Miskan H/C	6	4 (66.7)	4 (100)	4 (66.7)	(empty)
	Wolketa H/C	16	8 (50)	8 (100)	8 (50)	0
Gurage	**Sub total**	**106**	**39 (36.8)**	**37 (94.9)**	**37(34.9)**	**0**
Hadiya	Hosaena Hosp	**51**	**47 (92.2)**	**5 (10.6)**	**5 (9.8)**	**4 (7.8)**
	Durame H/C	17	16 (94.1)	1 (6.3)	1 (5.9)	15 (88.2)
	Shinshicho H/C	16	4 (25)	0	0	4 (25)
k/Tembaro	**Sub total**	**84**	**67 (79.8)**	**6 (9)**	**6 (7.2)**	**23 (27.4)**
Kaffa	Bonga Hosp	**18**	**0**	**0**	**0**	**0**
Konso	Karate H/C	**23**	**8 (34.8)**	**1 (12.5)**	**1 (4.4)**	**0**
Sheka	Tepi H/C	**135**	**5 (3.7)**	**2 (40)**	**2 (1.5)**	**2 (1.5)**
	Aleta wondo/H/c	13	13 (100)	0	0	(empty)
	Bona H/C	35	0	0	0	(empty)
	Chuko H/C	16	9 (56.3)	5 (55.6)	5 (31.3)	(empty)
	Dore bafano H/C	1	0	0	0	(empty)
	Melga H/C	35	0	0	0	4 (11.4)
	Wondogenet h/C	3	0	1	1 (33.3)	(empty)
Sidama	**Sub total**	**103**	**22 (21.4)**	**6 (27.3)**	**6 (5.8)**	**4 (3.9)**
Silte	Dalocha H/C	**41**	**25 (61)**	**15 (60)**	**15 (36.6)**	**7 (17.1)**
	Areka H/C	7	0	0	0	0
	Bele H/C	34	0	0	0	(empty)
	Boditi H/C	3	0	0	0	(empty)
	Soddo H/C	98	0	0	0	0
	Tome H/C	6	3 (50)	2 (66.7)	2 (33.3)	1 (16.7)
Wolayita	**Sub total**	**148**	**3 (2)**	**2 (66.7)**	**2 (1.4)**	**1 (0.7)**
Yem	Fufa H/C	**5**	**1 (20)**	**0**	**0**	**1 (20)**
Total Result		**1524**	**522 (34.3)**	**153 (27.1)**	**153 (10.1)**	**65 (4.3)**

Annex 2.

ANNEX VII : TB/HIV QUARTERLY REPORT FORM, FMOH

I. Identifying Information

Region _____ Zone _____ Woreda /Health Facility_____ Date _____

Quarter_ _____Year_____

II. Data on VCT clients:

Number of clients HIV counseled & tested: Male ____ Female _____ Total ____

HIV Positive: Male ____ Female ____ Total _____

Age category (in years) of those HIV tested positive 0-14: #. _____ 15-24: # _____25-34: # ____ 35-44: #____ 45+: #. _____

Number of clients referred from VCT unit for TB screening _____ # HIV positive_____ , # HIV negative_____

Number of clients referred from the VCT unit and screened for TB_____

Number of HIV positive clients diagnosed TB _____

Number of HIV positive clients free from TB _____

Number of HIV positive clients with out active TB put on IPT: 0-14: #. _____15-24: # _____ 25-34: #. _____ 35-44: #. _____ 45+: #. _____

III. Data from the TB clinic:

Number of TB patients counseled: Male ____ Female ____ Total ____

Number of TB patients HIV tested: Male ____ Female ____ Total ____

HIV + TB patients: Male _____ Female ____ Total ____ 0-14: #. _____15-24: # _____ 25-34: #. _____ 35-44: #. _____ 45+: #. _____

Number of HIV + TB patients on CPT _____

Number of HIV +TB patients on ART _____

Name of Coordinator _____Position _____Quarter _____ ____ Year _____ (E.C.)

Signature _____