

Tuberculosis Service Provision in Ethiopia: Health Facility Assessment

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Abstract

The major objective of the survey is to assess the availability and preparedness of health facilities in Ethiopia to provide quality Tuberculosis services. The survey was part of the 2014 Ethiopia Service Provision Assessment Plus Survey. A total of 1,327 health facilities were assessed. The results shows that more than two out of three (69%) facilities excluding health posts in Ethiopia offer any TB diagnostic, treatment or/and treatment follow up services. Among all health posts, 29% of them offer any TB diagnostic services and any treatment and/or treatment follow up services. Six in ten (59%) of facilities excluding health posts use sputum smear only to diagnose TB. Of those facilities offering any TB services more than half (60%) have trained staff. Among facilities excluding health posts offering any TB services, 44% have guidelines for diagnosis and treatment of TB, 18% have guideline for diagnosis and treatment of MDR-TB, and 9% have guideline for management of HIV and TB co-infection.

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As a conclusion we can say that any TB diagnostic, treatment or/and treatment follow up services is available in more than half of the facilities in Ethiopia excluding health post. Half of the health facilities in Ethiopia excluding health post have guidelines for diagnosis and treatment of TB.

Keywords: TB service provision; SPA+; Ethiopia.

1. Introduction

The major health problems of the country remain largely preventable communicable diseases, reproductive health related problems and nutritional disorders. Despite major progresses have been made to improve the health status of the population in the last two decades, Ethiopia's population still face a high rate of morbidity and mortality and the health status remains relatively poor. Figures on vital health indicators from EDHS 2011 show a life expectancy of 54 years (53.4 years for male and 55.4 for female), and an IMR of 59/1000 [1].

There are multiple components that will influence this: available infrastructure; staff deployment and presence; and availability and quality of services provided. Although routine reporting will contribute to this understanding, at this stage of the implementation of routine reporting, national surveys are required to further complement the available routine reporting.

The Federal Ministry of Health (FMoH) included monitoring and evaluation as an invaluable component of HSDP IV [2]. It is technically impossible to obtain all health and health related data exclusively through HMIS, conducting regular surveys is crucial to capture selected set of data and triangulate various sources in order to improve the accuracy of health interventions. The state of health in a country can be measured through indicators describing long-term program achievements and effects on the populations. Health Facility Assessments (HFA) or Health Facility Surveys (HFS) provide objective information of the preparedness of health facilities to provide the services required by the population. Thus, selected indicators need to be measured to obtain data on the facilities, supplies, and services for informed decision-making.

Sound information on the supply and quality of health services is necessary for health systems management, monitoring and evaluation. Efforts to achieve the Millennium Development Goals (MDGs) and to scale up interventions for HIV/AIDS, malaria, safe motherhood and child health through global health partnerships, have drawn attention to the need for strong country monitoring of health services, covering the public, private-for-profit and private not-for-profit sectors, and their readiness to deliver key interventions.

With the increased demand for accountability and the need to demonstrate results at country and global levels, information is needed to track how health systems respond to increased inputs and improved processes over time, and the impact such inputs and processes have on improved health outcomes and better health status.

However, despite heightened investments in health systems, few countries have up-to-date information on the availability of health systems that covers both the public and private sectors. Fewer still have accurate, up-to-date information required to assess and monitor the "readiness" of health facilities to provide quality services.

Ensuring access to quality health services is one of the main functions of a health system. Service access includes different components: availability, which refers to the physical presence or reach of the facilities; affordability, which refers to the ability of the client to pay for the services; and acceptability, which refers to the sociocultural dimension.

The quality of services is yet another dimension. A prerequisite to service quality is service readiness, i.e. the health facilities should have the capacity to deliver the services offered. This capacity includes the presence of trained staff, guidelines, infrastructure, equipment, medicines and diagnostic tests. Service availability and readiness are prerequisites to quality services, but do not guarantee the delivery of quality services.

Ethiopia is one of the 22 high burden countries (HBCs) in the world high incidence and prevalence of TB [3]. The national population based TB prevalence survey conducted in 2010/11 revealed that the prevalence of smear positive TB among adults and all age group was found to be 108 and 63 per 100,000 populations, respectively. The prevalence of bacteriologically confirmed TB was found to be 156/100,000 populations and by extrapolations, the prevalence of all forms of TB in Ethiopia is estimated to be 240/100,000 populations [4].

According to the FMOH 2013/14 annual performance report of Ethiopia, in 2013 it was planned to start TB case management at health post (HP level) and to increase the number of facilities that treat Multi-Drug Resistant Tuberculosis (MDR-TB) [5]. The report indicated that TB treatment success rate (TSR) showed a slight increase from 90.6 percent in 2012 to 91.4 percent in 2013 (below the target of 95 percent set for that year), while TB cure rate increased from 68.2 to 70.3 percent in the same period (below the target of 79 percent set for 2013) [5].

However, despite this result, constant efforts and resources should be ensured to address the remaining challenges and sustain achievements. To build on the achievements of DOTS and address the remaining challenges, the STOP TB strategy was launched by WHO in 2006 to help achieve the millennium development goals or TB in 2015 [6, 3]. Ethiopia also adopted this strategy to achieve the national TBL and TB/HIV targets [5].

2. Objective

The major objective of the survey is to assess the availability and preparedness of health facilities in Ethiopia to provide quality tuberculosis services.

3. Methodology

3.1 study design and location

This study is part of the Ethiopian Service Provision Assessment Plus (SPA+) and it is a cross-sectional study, which combine MEASURE DHS SPA, World Health Organization's service Availability and Readiness Assessment (SARA) and the World Bank's Service Delivery Indicator (SDI). The sample size for the study was determined by a combination of census and random samples.

Information was collected from a representative sample of facilities managed by the government, non-governmental organisations (NGOs), and private for-profit organisations, in all 9 regions and 2 city administrations of the country to provide a comprehensive picture of the strengths and weaknesses of the service delivery environment for each assessed service.

This study provide indicators at national level for the different facility types and managing authority as well as aggregate indicators at the regional level.

3.2 data collection instrument

To achieve the objectives of the assessment and to capture information from the different categories, data were collected using the following instruments:

A facility inventory questionnaire was used to obtain information on how the facilities are prepared to provide each of the priority services.

A health provider questionnaire was used to solicit information from a sample of health service providers on their qualifications (training, experience, and continuing education), supervision they had received, and their perceptions of the service delivery environment.

The tools were developed for all facility types except for health posts, this could be a limitation of the study.

3.3 Data Collection Approaches

After preparation of definitive questionnaires in English, the questionnaires were translated into Amharigna. English and Amharigna translation of the inventory questionnaire were loaded onto tablet computers, which were used during interviews to ask questions and also record responses (computer assisted personal interviewing–CAPI).

3.4 Sampling

The sample for the survey was a stratified random sample designed to provide representative results for Ethiopia, for different facility types and different management authorities, and for each of the 11 regions of the country.

The formula used for the sample size calculation is given by

$$n = \frac{(1 - p)}{\varepsilon^2 p}$$

where ε is the requested relative standard error for estimating a proportion P .

Because of their importance and their limited numbers, all hospitals were included in the survey and allowing for inclusion of newly identified hospital in the survey. A representative sample of health centres and clinics were selected and included in the survey. A total sample size of 1,327 health facilities were selected, including 321 health posts and 10 newly identified hospitals. Health posts were independently selected, analysed, and reported.

3.5 Training and Data Collection

Pre-Test

The questionnaires were pretested to detect any possible problems in the flow of the questionnaires, gauge the length of time required for interviews, as well as any problems in the translations. The pretest also helped to detect any problems with the data entry programs.

Main Assessment

The main training for the survey took place from February 06, 2014 – March 09, 2014. Main data collection took place from March 10, 2014, to July 25, 2014. The team leader had responsibility of checking all questionnaires before leaving the facility. Each team was given a list of facility to visit, list of facilities name, type, and location.

3.6 Data management and analysis

The information entered in the PC-tablets by each interviewer was downloaded daily by the team supervisor into his/her computer, and sent regularly to the central office (EPHI), preferably when data collection was completed in a health facility.

Conventions were observed during the analysis of the survey data. Unless otherwise indicated, the report considered only those items observed by the interviewers themselves to be available.

3.7 Ethical clearance

Ethical clearance was obtained from the Institutional Review Board of Scientific and Ethical Review Office (SERO) of EPHI. Copies of letter of approval by SERO was presented to regional health bureaus. On top of that, informed consent was obtained from the facility in-charge, from all respondents for the facility inventory questionnaires, and from interviewed providers.

4. Result

4.1 Availability of tuberculosis diagnosis and management services

4.1.1 Availability of tuberculosis Diagnosis services

Overall, more than two out of three (69 percent) facilities excluding health posts in Ethiopia offer any TB diagnostic, treatment or/and treatment follow up services where 67 percent have any TB diagnostic services using different methods like clinical symptoms, sputum smear, x-ray, both sputum smear and x-ray or either of the two.

Almost all referral hospitals (97 percent) reports that providers in the facility make a diagnosis of TB by using any of the following methods: sputum smear only, X-ray only, either sputum or X-ray, both sputum and X-ray, based on clinical symptoms only, sputum culture, or molecular tests; or else the facility reports that they refer clients outside the facility for TB diagnosis, and a register was observed indicating clients who had been referred for TB diagnosis. However, screening and referral for TB diagnosis is 38 percent.

Almost all General hospitals (97 percent) reports that providers in the facility make a diagnosis of TB by using any of the following methods: sputum smear only, X-ray only, either sputum or X-ray, both sputum and X-ray, based on clinical symptoms only, sputum culture, or molecular tests; or else the facility reports that they refer clients outside the facility for TB diagnosis, and a register was observed indicating clients who had been referred for TB diagnosis. However, one third of the General hospitals offer screening and referral for TB diagnosis.

Almost all Primary hospitals (98 percent), nine of ten health centers, and three in ten health posts report that providers in the facility make a diagnosis of TB by using any of the following methods: sputum smear only, X-ray only, either sputum or X-ray, both sputum and X-ray, based on clinical symptoms only, sputum culture, or molecular tests; or else the facility reports that they refer clients outside the facility for TB diagnosis, and a register was observed indicating clients who had been referred for TB diagnosis. Screening and referral for TB diagnosis in primary hospitals, health centers, and health posts is 40 percent, 39 percent, and 29 percent respectively.

Higher clinics (87 percent) and medium clinics (82 percent) reports that providers in the facility make a diagnosis of TB by using any of the following methods: sputum smear only, X-ray only, either sputum or X-ray, both sputum and X-ray, based on clinical symptoms only, sputum culture, or molecular tests; or else the facility reports that they refer clients outside the facility for TB diagnosis, and a register was observed indicating clients who had been referred for TB diagnosis. Of all health facilities excluding health posts, 23 percent reported that they screen and refer the clients outside the health facility for TB diagnosis.

Government health facilities are more likely to provide TB diagnostic services (91 percent) than private for profit (40 percent) facilities. At the regional level, facilities in Addis Ababa (91percent), Harari (84 Percent), Dire Dawa (82 percent), and Tigray (80 percent) regions are more likely to offer TB diagnostic services (Table 1).

Among all health posts, 29 percent of them offer any TB diagnostic services and any treatment and/or treatment follow up services. The same percentage (29 percent) of health posts reported that they screen and refer the client outside the facility for TB diagnosis. At regional level, health posts in Afar and Somali regions reported

that they offer neither any TB diagnostic, treatment and/or treatment follow up services nor screening and referral services for TB diagnosis. Among all health posts offering any TB services, 65 percent had at least one provider reported receiving in-service training relevant to particular TB treatment during the last 24 months preceding the survey.

Table 1: Availability of tuberculosis services, guidelines, and trained staff for tuberculosis services

Among all facilities excluding health posts, the percentages offering any tuberculosis (TB) diagnostic services or any treatment and/or treatment follow-up services and, among facilities offering any TB services, the percentages having TB guidelines and at least one staff member recently trained in TB services, by background characteristics, Ethiopia SPA+ 2014

Background characteristics	Percentage of all facilities offering:				Number of facilities	Percentage of facilities offering any TB services that have guidelines for:					Number of facilities offering any TB diagnostic, treatment and/or treatment follow-up services
	Screening and referral for TB diagnosis ¹	Any TB diagnostic services ²	Any TB treatment and/or follow-up services ³	Any TB diagnostic, treatment and/or follow-up services ³		Diagnosis and treatment of TB	Diagnosis and treatment of MDR-TB	Management of HIV and TB co-infection	Control of TB	Trained staff ⁴	
Facility type											
Referral Hospital	38	97	84	97	2	77	55	0	35	81	2
General Hospital	33	97	85	98	7	68	35	7	24	79	7
Primary Hospital	40	98	92	98	3	69	45	8	22	76	3
Health Center	39	91	91	95	182	54	21	9	11	71	173
Higher Clinic	18	87	32	87	13	37	19	13	29	59	11
Medium Clinic	11	82	15	82	37	15	7	13	14	26	30
Lower Clinic	2	22	1	22	119	5	0	5	10	16	26
Managing authority											
Government/public	39	91	91	95	190	55	22	8	12	72	181
Other governmental (military, prison, federal police)	6	62	11	62	2	9	9	0	0	14	1
Private for profit	5	40	6	40	163	16	7	11	16	27	65
NGO (mission/faith-based, nonprofit)	27	63	42	63	8	36	23	2	4	73	5
Region											
Tigray	32	80	66	84	22	61	31	8	18	57	18
Afar	33	60	49	63	5	59	6	0	8	59	3
Amhara	14	63	52	66	87	58	24	11	19	72	58
Oromia	33	62	60	64	116	49	14	8	8	70	75
Somali	20	73	55	73	8	35	3	1	5	48	6
Benishangul Gumuz	6	44	47	51	4	69	25	13	3	72	2
SNNP	22	73	48	74	80	28	15	7	8	51	60
Gambella	6	15	12	16	6	25	10	19	19	63	1
Harari	14	91	46	91	2	44	25	9	16	53	2
Addis Ababa	20	84	22	84	31	26	20	15	20	31	26
Dire Dawa	26	82	64	82	3	61	22	5	20	73	2
Urban/rural											
Urban	19	70	39	70	149	45	23	8	19	53	105
Rural	26	66	60	69	214	44	15	10	8	65	147

Total	23	67	51	69	363	44	18	9	13	60	252
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Note: The guidelines and trained staff indicators presented in this table comprise the staff and training domain for assessing readiness to provide TB services within the health facility assessment methodology proposed by WHO and USAID (2012).

Note: MDR-TB = multi-drug resistance tuberculosis

¹ Facility reports that it refers clients outside the facility for TB diagnosis, and there is documentation on the day of the survey visit to support the contention.

² Facility reports that providers in the facility make a diagnosis of TB by using any of the following methods: sputum smear only, X-ray only, either sputum or X-ray, both sputum and X-ray, based on clinical symptoms only, sputum culture, or molecular tests; or else the facility reports that they refer clients outside the facility for TB diagnosis, and a register was observed indicating clients who had been referred for TB diagnosis.

³ Facility reports that they follow one of the following TB treatment regimens or approaches:

- Directly observe for two months and follow up for four months
- Directly observe for six months
- Follow up clients only after the first two months of direct observation elsewhere
- Diagnose and treat clients while in the facility as inpatients, and then discharge elsewhere for follow-up
- Provide clients with the full treatment with no routine direct observation phase
- Diagnose, prescribe, or provide medicines with no follow-up

⁴ At least one interviewed provider of any one of the following TB services reported receiving in-service training relevant to the particular TB service during the 24 months preceding the survey: TB diagnosis and treatment; management of HIV and TB co-infection; MDR-TB treatment, identification of need for referral; or TB infection control. The training must have involved structured sessions; it does not include individual instruction that a provider might have received during routine supervision.

Common Diagnostic methods for PTB

Six in ten (59 percent) of facilities excluding health posts have the capacity to stain sputum for TB diagnosis. Even though the guideline did not allow, 7 percent of lower clinics reported to have the capacity to stain sputum for TB diagnosis. Among all health facilities offering any TB diagnostic, treatment or/and treatment follow up services, half of primary hospitals, 67 percent of health centres, 55 percent of higher clinics, and 71 percent medium clinics have the capacity to stain sputum for TB diagnosis (Figure 1).

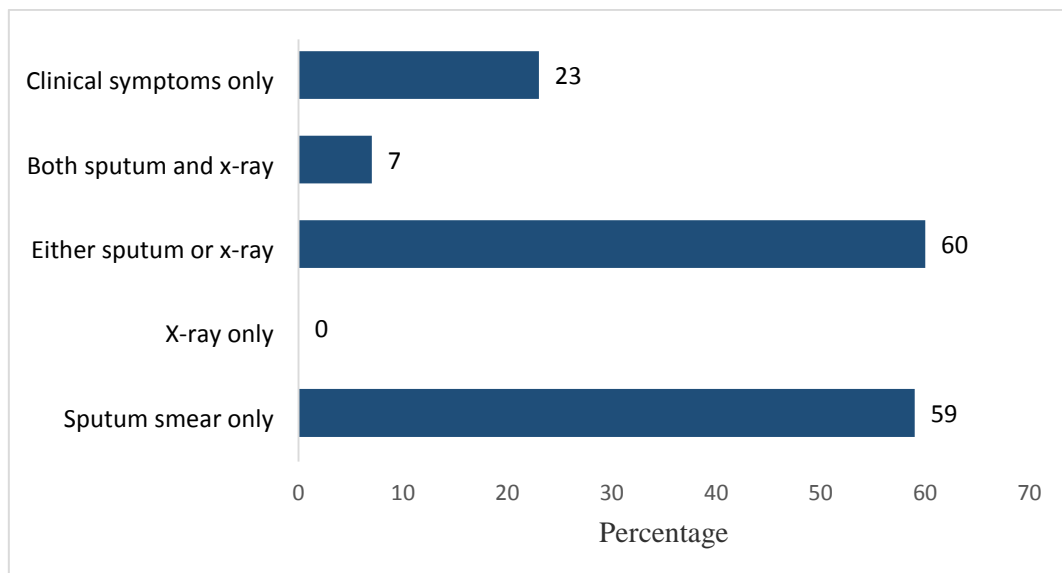


Figure 1: Common methods used for diagnosis of pulmonary TB among facilities, excluding health posts, offering any TB services, ESPA+2014

4.1.2 Availability of Tuberculosis Management Services

Facilities report that one of the following treatment approaches; directly observe for two months and follow up for 4 months, directly observe for six months or follow clients only after the first two months of direct observation elsewhere or treat clients while in the facility as inpatient. According to the definition, TB treatment or follow up service is available in half (51 percent) of all facilities excluding health posts, including 92 percent of primary hospitals, 91 percent of health centres and 32 percent of higher clinics. Government health facilities are more likely to offer treatment or follow up service (91 percent) than private for profit facilities (6 percent). At regional level, facilities in Tigray (66 percent) and Dire Dawa (64 percent) regions are more likely to offer treatment and/or follow up services than facilities in Addis Ababa and Gambella regions (22 and 12 percent), respectively.

4.2 Readiness to Provide Quality Tuberculosis Services

4.2.1 Availability of guidelines and trained staff for TB Services

Among facilities excluding health posts offering any TB services, 44 percent have guidelines for diagnosis and treatment of TB, 18 percent have guideline for diagnosis and treatment of MDR-TB, and 9 percent have guideline for management of HIV and TB co-infection. Of those facilities offering any TB services more than half (60 percent) have trained staff (Table 2).

Government health facilities are more likely to have PTB and MDR –TB treatment guidelines than private facilities. Among facilities offering any TB services, six out of every ten facilities report that they have at least one provider of TB who received in-service training during the 24 months preceding the survey. These in-services trainings include TB diagnosis and treatment or management of HIV/TB co-infection or MDR-TB treatment or identification of need for referral or TB infection control at health facility.

At national level, two-third (65 percent) of health posts offering any TB diagnostic, treatment and/or follow up services reported that they have at least one provider trained on TB.

Table 2: Availability of tuberculosis services, guidelines, and trained staff for tuberculosis services at health post

Among all health posts, the percentages offering any tuberculosis (TB) diagnostic services or any treatment and/or treatment follow-up services and, among health posts offering any TB services, the percentages having TB guidelines and at least one staff member recently trained in TB services, by background characteristics, Ethiopia SPA+ 2014

Background characteristics	Percentage of all health posts offering:			Number of facilities	Percentage of health posts offering any TB services that have guidelines for:		Number of health posts offering any TB diagnostic, treatment and/or follow-up
	Screening and referral for TB diagnosis ¹	Any TB diagnostic services ²	Any TB treatment and/or follow-up services ³		TB infection control	Trained staff ⁴	

							services
Facility type							
Health Post	29	29	29	802	3	65	233
Managing authority							
Government/public	29	29	29	800	3	65	233
Other governmental (military, prison, federal police)	0	0	0	2	-	-	0
Region							
Tigray	12	12	12	33	0	33	4
Afar	0	0	0	10	-	-	0
Amhara	34	34	34	182	0	58	62
Oromia	30	30	30	316	8	62	93
Somali	0	0	0	31	-	-	0
Benishangul Gumuz	7	7	7	17	0	100	1
SNNP	34	34	34	205	0	77	70
Gambella	4	4	4	4	0	100	0
Harari	29	29	29	1	0	83	0
Dire Dawa	45	45	45	2	14	21	1
Urban/rural							
Urban	28	28	28	26	0	99	7
Rural	29	29	29	776	3	64	225
Total	29	29	29	802	3	65	233

Note: The guidelines and trained staff indicators presented in this table comprise the staff and training domain for assessing readiness to provide TB services within the health facility assessment methodology proposed by WHO and USAID (2012).

¹ Facility reports that it refers clients outside the facility for TB diagnosis, and there is documentation on the day of the survey visit to support the contention.

² Facility reports that providers in the facility make a diagnosis of TB by using any of the following methods: sputum smear only, X-ray only, either sputum or X-ray, both sputum and X-ray, based on clinical symptoms only, sputum culture, or molecular tests; or else the facility reports that they refer clients outside the facility for TB diagnosis, and a register was observed indicating clients who had been referred for TB diagnosis.

³ Facility reports that they follow one of the following TB treatment regimens or approaches:

- Directly observe for two months and follow up for four months
- Directly observe for six months
- Follow up clients only after the first two months of direct observation elsewhere
- Diagnose and treat clients while in the facility as inpatients, and then discharge elsewhere for follow-up
- Provide clients with the full treatment with no routine direct observation phase
- Diagnose, prescribe, or provide medicines with no follow-up

⁴ At least one interviewed provider of any one of the following TB services reported receiving in-service training relevant to the particular TB service during the 24 months preceding the survey: TB diagnosis and treatment; management of HIV and TB co-infection; MDR-TB treatment, identification of need for referral; or TB infection control. The training must have involved structured sessions; it does not include individual instruction that a provider might have received during routine supervision.

4.2.2 Diagnostic capability and availability of medicines for treatment of Tuberculosis

Among facilities excluding health posts offering TB diagnosis, treatment and/or follow up services, 52 percent have diagnostic capacity using TB smear microscopy, while very few reported having TB x-ray (6 percent) and rapid diagnostic test kits (2 percent). On the other hand, only 3 percent of referral hospital and 1 percent general hospitals have TB diagnostic capability using culture medium. Regarding availability of quality control system,

11 and 12 percent of the facility have internal quality (IQ) and External quality (EQ) control system of sputum smear, respectively, while 24 percent have both systems.

Among all health facilities excluding health post providing TB diagnosis, treatment and/or follow up services, 67 percent have all first-line TB medicines available. Most of the hospitals (87 percent referral, 82 percent general, and 92 percent primary), and health centers (88 percent) provide all first-line medicines, while only in less than 15 percent of (higher, medium and lower) clinics, all first-line medicines were available for TB treatment. At the regional level, among facilities providing TB diagnosis, treatment and/or follow up services, Benishangul Gumuz (94 percent), Oromia (83 percent), Gambella (82 percent) and Tigray (80 percent) regions are more likely to have all first-line drugs (Table 3).

Among all health posts providing any TB diagnostic, treatment and/or treatment follow up services, only 15 percent had HIV diagnostic capacity. At region level, facilities in Dire Dawa region (79 percent) is more likely to have HIV diagnostic capacity.

Table 3: Diagnostic capacity and availability of medicines for tuberculosis treatment

Among facilities, excluding health posts, offering any tuberculosis (TB) diagnostic, treatment and/or treatment follow-up services, the percentages that have TB and HIV diagnostic capacity and medicines for TB treatment available in the facility on the day of the survey, by background characteristics, Ethiopia SPA 2014

Background characteristics	Percentage of facilities that have the following TB diagnostic capacity						Percentage of facilities that have		Percentage of facilities that have the following medicines for treating TB			Number of facilities offering any TB diagnostic, treatment and/or treatment follow-up services
	TB smear microscopy ¹	Culture medium ²	sputum smear: EQ	sputum smear: IQ	Both	TB rapid diagnostic test kits	HIV diagnostic capacity ³	HIV among clients ⁴	First-line treatment for TB ⁵	Injectable streptomycin		
Facility type												
Referral												
Hospital	84	3	10	13	71	6	77	100	94	87	58	2
General												
Hospital	81	1	12	14	57	6	75	98	80	82	57	7
Primary												
Hospital	78	0	10	12	73	0	49	96	86	92	67	3
Health Center	54	0	15	11	27	1	0	95	81	88	42	173
Higher Clinic	81	0	11	22	32	7	43	70	39	14	3	11
Medium Clinic	56	0	7	15	6	0	3	46	19	15	0	30
Lower Clinic	2	0	0	0	1	0	0	17	7	2	0	26
Managing authority												
Government/												
public	56	0	15	11	29	1	3	96	81	89	43	181
Other	18	0	0	0	14	0	9	100	14	18	5	1

governmental (military, prison, federal police)													
Private for profit	41	0	4	12	10	2	13	39	18	9	1		65
NGO (mission/ faith-based, nonprofit)	45	0	28	4	6	0	10	72	64	64	7		5
Region													
Tigray	69	0	8	21	41	0	7	94	77	80	52		18
Afar	65	0	9	0	38	4	6	87	61	74	25		3
Amhara	54	0	7	18	29	0	4	84	71	76	39		58
Oromia	49	0	12	8	26	2	4	93	81	83	31		75
Somali	44	0	12	7	3	0	9	81	41	61	37		6
Benishangul													
Gumuz	47	0	28	3	44	0	6	88	81	94	44		2
SNNP	40	0	19	3	15	1	2	72	51	58	27		60
Gambella	47	0	0	25	0	0	6	82	44	82	44		1
Harari	66	0	22	3	16	0	13	53	38	38	28		2
Addis Ababa	65	0	9	18	18	4	19	47	27	16	11		26
Dire Dawa	71	0	27	2	39	2	15	85	76	73	37		2
Urban/rural													
Urban	63	0	9	15	33	1	12	72	55	49	30		105
Rural	43	0	14	8	17	2	1	87	71	80	32		147
Total	52	0	12	11	24	2	6	80	64	67	31		252

Note: The indicators presented in this table comprise the diagnostics and medicines and commodities domains for assessing readiness to provide services for TB within the health facility assessment methodology proposed by WHO and USAID (2012).

EQ = External quality, IQ = Internal quality, Both = availability of both External and Internal quality assessment

¹ Functioning microscope, slides, and all stains for Ziehl-Neelson test (carbol-fuchsin, Sulphuric acid and methyl blue) all were available in the facility on the day of the survey visit.

² Solid or liquid culture medium, e.g., MGIT 960

³ HIV rapid diagnostic test kits available, or ELISA with reader, incubator, and specific assay; or dynabeads with vortex mixer; or western blot

⁴ Record or register indicating TB clients who had been tested for HIV

⁵ Four-drug fix-dose combination (4FDC) available, or else isoniazid, pyrazinamide, rifampicin, and Ethambutol are all available, or a combination of these medicines, to provide first-line treatment

Tuberculosis and HIV/AIDS Services

In ESPA+ survey the availability of TB/HIV collaborative services were also assessed. Accordingly, among facilities excluding health posts offering any TB diagnostic, treatment, and/or follow up services, 80 percent have HIV diagnostic capacity and 64 percent of the facilities have a system in place for diagnosing HIV among TB clients.

4.2.3 Tuberculosis Infection Control

Each facility should have a standard precaution and a set up conditions for client examination in the treatment of

TB patients. Among facilities providing TB diagnosis or/and treatment, less than half of the facilities have soap (44 percent) and running water (38 percent), while only 28 percent have both water and soap. Thirty percent of the facilities have alcohol based hand rubbing antiseptics and about 43 percent have either alcohol-based hand rubbing antiseptics or water and soap as infection control mechanism for treating TB clients. Similarly, the percentages of facilities with waste receptacle and medical mask on the day of data collection is 24 and 13 percent, respectively (Table 4).

About one third of health centers (31 percent) and four of ten health posts (41 percent) have either soap and water or alcohol-based hand antiseptics. Government health facilities (37 percent) are less likely to have soap and water or alcohol-based hand antiseptics compared with facilities managed by private for profit (77 percent).

Table 4: Standard precautions and conditions for client examination for tuberculosis treatment

Facilities having standard precautions and conditions for client examination for tuberculosis treatment										Number of facilities offering any TB diagnostic, treatment and/or treatment follow-up services
Background characteristics	Soap	Running water ¹	Soap and running water	Alcohol-based hand antiseptic	Soap and Alcohol-based hand antiseptic	Alcohol-based hand antiseptic	Latex gloves ²	Sharps container	Waste receptacle ³	
Facility type										
Referral Hospital	81	74	68	81	97	87	84	45	77	2
General Hospital	59	61	52	72	79	81	83	48	61	7
Primary Hospital	41	39	33	51	63	82	94	29	39	3
Health Center	24	32	19	24	31	57	73	19	17	173
Health Post	53	31	24	23	41	90	100	21	2	233
Higher Clinic	70	66	63	76	87	87	60	62	55	11
Medium Clinic	70	75	67	64	82	82	63	49	39	30
Lower Clinic	57	73	57	54	65	92	69	25	19	26
Managing authority										
Government/ public	41	32	22	24	37	76	89	21	10	413
Other governmental (military, prison, federal police)	100	95	95	91	100	100	18	14	5	1
Private for profit	65	71	62	63	77	85	64	44	35	65
NGO (mission/ faith-based, nonprofit)	56	74	55	54	63	85	91	38	45	5
Region										
Tigray	47	46	42	52	58	69	82	36	23	22
Afar	38	27	21	34	47	57	70	20	47	3
Amhara	52	37	32	25	41	88	89	16	11	120
Oromia	47	33	23	31	43	79	87	24	6	168
Somali	23	41	17	22	31	59	79	8	23	6
Benishangul Gumuz	4	23	4	21	21	73	85	13	23	3

SNNP	29	35	20	21	31	68	84	22	13	130
Gambella	37	32	32	45	45	84	92	32	53	1
Harari	42	47	39	63	66	82	74	13	39	2
Addis Ababa	80	80	76	71	94	83	69	60	59	26
Dire Dawa	45	49	42	47	60	96	84	40	36	3
Urban/rural										
Urban	54	58	44	50	61	81	75	36	38	112
Rural	41	32	23	24	38	77	88	20	6	373
Total	44	38	28	30	43	77	85	24	13	485

Note: The indicator presented in this table comprise country specific standard precautions for client examination for TB within the health facility assessment methodology proposed by Ethiopian SPA+, 2014.

¹ Piped water, water in bucket with specially fitted tap, or water in pour pitcher.

² Non-latex equivalent gloves are acceptable.

³ Waste receptacles with plastic bin liner.

5. Conclusion and Recommendations

5.1 conclusions

In view of the above results, the following conclusions are to be drawn.

- More than two-third of facilities excluding health posts and (one third of health posts) in Ethiopia offer any TB diagnostic, treatment or/and treatment follow up services.
- Less than half of the facilities excluding health posts have the capacity to stain sputum for TB diagnosis.
- Of all facilities excluding health posts offering any TB services, treatment and diagnosis guideline is observed to be available in about half of the facilities while about two third of facilities (65 percent in health posts) report that they have at least one provider received in-service training related to Tb services two years prior to the survey.
- Among facilities excluding health posts offering any TB diagnostic, treatment, and/or treatment follow up services, two third of them have a system for diagnosing TB clients for HIV.

5.2 Recommendations

- The capacity of health facilities to stain sputum smear for TB diagnosis should be capacitated.
- Guideline of TB services, treatment and diagnosis should be provided and maintained to a service area.
- Early identification of HIV is important for TB patients and adequate infection control measures to minimize the opportunity for cross infection.
- Expansion of culture and drug susceptibility testing are necessary for TB patients in Ethiopia.

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Reference

[1] Central Statistical Agency [Ethiopia] and ICF International. 2012. Ethiopia Demographic and Health Survey 2011. Addis Ababa, Ethiopia, and Calverton, Maryland, USA: Central Statistical Agency and ORC Macro.

[2] Federal Democratic of Ethiopia, Minister of health. Health Sector Development Plan IV (HSDP IV) 2010/11 - 2014/15; 2010. FMOH, Addis Ababa, Ethiopia.

[3] WHO.2011. Global Plan to Stop TB: 2011-2015

[4] FMOH/EHRNI. 2011. First Ethiopian National Population Based Tuberculosis Prevalence Survey: July 2011, Addis Ababa

[5] FMOH.2013. Health Sector Development Programme IV Annual Performance Report, 2013.

[6] WHO.2011. Global Tuberculosis Control: 2011 WHO report WHO. 2006. The STOP TB strategy.