

Review of the Access to Tuberculosis Care in Doolo Zone in the Somali Region State of Ethiopia.

By: Elshafie Mohamed Ahmed Mohamed

From: Sudan

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Review of the access to tuberculosis care in Doolo Zone in Somali region State of Ethiopia.

A thesis submitted in partial fulfilment of the requirement for the degree of Master of Public

Health by: Elshafie Mohamed Ahmed Mohamed

Sudan

Declaration: Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements. The thesis; Review of the access to tuberculosis care in Doolo Zone in Somali region State of Ethiopia is my own work.

Signature:



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DEDICATION

I dedicate this thesis to my parents; my father Mohamed Ahmed. The man who has been very keen to raise me and my siblings with solidarity and oneness values. My loving mother Arafa Abbas who did the impossible to bring me where I am now. My wife Suha Babiker who is doing more than the best of her level to make me a better person. I appreciate all their sacrifices to make me a better person.

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Abstract:

Tuberculosis is a major public health issue in Doolo Zone with the highest incidence, prevalence and the lowest case detection rate in Ethiopia.

The study aimed at analysing the access to TB services in DZ, to give recommendations to Somali regional state, the national TB programme and the agencies involved in TB.

The literature review, desk review and TB data analysis were the methods used.

The access to TB care in DZ was found to be great challenge. The health strategies are failing to reach the pastoralists. The data suggested wide inequity in utilization of the TB services in DZ. The major reasons identified were; lack of well-functioning and equitably distributed TB service centres, far distances, lacking public transport, high direct, indirect and opportunity cost. In addition, low quality of available diagnostics services, narrow coverage of outreach and lacking good coordination are supplier related factors of limitation. The low literacy levels, gender, poverty, social believes, inter-clan politics and conflict and mobile lifestyle are limitation factors from the client's side.

These factors could be addressed through some proven or promising effective measurements such as: create policies that address the high cost and adapt it to the pastoralists. Strategically placed TB centres need to be created. Improvement of the coordination is required. TB screening campaigns are a proven effective strategy. Self-administered treatment and TB village could be an effective strategy too. Trainings, supervision and providing Xpert are required. An instructional video for sputum production and submission, can improve the laboratory screening. Qualitative studies are needed to bridge the gap in knowledge.

Key words:

Tuberculosis, Pastoralists, Somali and Access are the keywords.

Word Count: 12921

Name: Elshafie Mohamed Ahmed. **Country:** Sudan

Table of abbreviations:

Acronym	
MSF	Medecins Sans Frontiers
US\$	United States Dollar
AFB	Acid Fast Bacilli
AIDS	Acquired Immune Deficiency Syndrome
APA	American Psychological Association
CDR	Case Detection Rate
CHW	Community Health Worker
CI	Confidence Interval
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CMR	Crude Mortality Rate
CNR	Case Notification Rate
CPD	Continuing Professional Development
CSA	Central Statistics Agency
DHS	Demographic and Health Survey
DOTS	Directly Observed Treatment Short-course
DPPB	Disaster Prevention and Preparedness Bureau
DRTB	Drug Resistant Tuberculosis
DZ	Doolo Zone
EFY	Ethiopian Fiscal Year
EHIA	Ethiopian Health Insurance Agency
EPHI	Ethiopian Public Health Institute
FMOH	Federal Ministry of Health
HC	Health Centre
HCFR	Health Care Finance Reform
HDA	Health Development Army
HEP	Health Extension Programme
HEW	Health Extension Worker
HIV	Human Immunodeficiency Virus
HP	Health Post
HRH	Human Resource for Health
HSDP	Health Sector Development Plan
HSTP	Health Sector Transformation Plan
IMR	Infant Mortality Rate
IPD	In-Patient Department
LED	fluorescent Light Emitting Diode
MDR	Multi-Drug Resistant
MOFED	Ministry of Finance and Economic Development

MOH	Ministry of Health
NGO	Nongovernmental Organization
NTG	National Treatment Guideline
NTP	National Tuberculosis Programme
ONLF	Ogaden National Liberation Front
OOP	Out of the Pocket
PHCU	Primary Health Care Unit
PLWHA	People Living With HIV/Aids
PTB	Pulmonary Tuberculosis
RNI	Rate of Natural Increase
SAT	Self-Administered Treatment
SCUK	Save the Children United Kingdom
SDG	Sustainable Development Goal
SNNPR	South Nations and Nationalities People region
SRG	Somali Regional Government
SRS	Somali Regional State
TB	Tuberculosis
TFP	Therapeutic Feeding Programme
TFR	Total Fertility Rate
TLCP	TB Leprosy Control Programme
TRAC	TB Research Advisory Committee
VU	Vrije Universiteit (Free University)
WHO	World Health Organization
ZN	Ziehl Neelsen

Table of Glossaries:

Case Detection Rate	The CDR is the percentage of estimated new and relapse TB cases detected in each year under the internationally recommended tuberculosis control strategy. The term “case detection”, means that TB is diagnosed in a patient and is reported within the national surveillance system and to WHO. The term “rate” is used for historical reasons. The indicator is actually a ratio (expressed as a percentage) and not a rate. (1).
Case Notification Rate	CNR is the number of new and relapse TB cases notified in each year, per 100000 population. The term “notification” means that TB is diagnosed in a patient and is reported within the national surveillance system and WHO(2).
Completed Treatment	A TB patient who completed treatment without evidence of failure BUT with no record to show that sputum smear or culture results in the last month of treatment and on at least one previous occasion were negative, either because tests were not done or because results are unavailable(3).
Cured from TB	A pulmonary TB patient with bacteriologically confirmed TB at the beginning of treatment who was smear- or culture-negative in the last month of treatment and on at least one previous occasion(3).
Derg Regimen	Derg or Dregue means Council or committee and it is the short name of the Coordinating Committee of the Armed Forces, Police, and Territorial Army that rule Ethiopia between 1974 and 1987. It took power following the downfall of Emperor.
Health Development Army (HAD)	(HDA) refers to an organized movement of communities moves through participatory learning and action meetings. It is designed to improve the implementation capacity of the health sector by engaging communities to identify local challenges and corresponding strategies.
Health Extension Programme (HEP)	(HEP) is one of the strategies adopted in Ethiopia with a view to achieving universal coverage of primary health care among the rural population
Health Extension Worker (HEW)	HEWs are deployed to health post. They are recruited based on criteria like residence in the village, capacity to speak local language, graduation from 10th grade, and willingness to remain in the village and serve their communities. They are trained for one year, which includes both theoretical and practical training. They are regularly paid staff(4).
Kebele	Kebele is the administrative unit under the Woreda(5)
Lost to Follow-Up	Lost to follow- up is the TB patient who did not start treatment or whose treatment was interrupted for 2 consecutive months or more(4).
Suspected TB	Suspected TB refers to a patient who presents with symptoms or signs suggestive of TB in particular, cough of two weeks or more duration(6).
Woreda	Woreda is the administrative division in Ethiopia that is below the region. It replaced the district.
Xpert	Xpert is an automated real-time nucleic acid amplification technology for rapid and simultaneous detection of tuberculosis and rifampicin resistance(7)

1 Chapter 1: Introduction and background:

1.1 Introduction:

I am a Sudanese medical doctor who has been working with Médecins Sans Frontiers MSF (doctors without borders) for the past 13 years in many countries and continents in different capacities. My connection to the great Somalia region (Somali region of Ethiopia, South Central Somalia, Puntland and Somaliland) and the Tuberculosis (TB) as a public health problem, goes back to 2010. In 2010 I worked as a Medical Coordinator with MSF in Somaliland and I did a health need assessment, including TB in Hargeisa and Sanag Region. Then in 2013 I worked as a Medical Coordinator for the Somalia mission (South-Central and Puntland) with MSF where I managed TB programmes in three sites including a Multi-drug resistant short course programme in Galcayo north. Unfortunately, MSF had to close that mission due to security and safety incidents that took place and concerns about reoccurrence. The closure of the mission in Somalia deprived hundreds of thousands of Somalis, from the great Somalia region, from getting access to needed medical care including TB care. I again worked as a Medical Coordinator for MSF in Ethiopia managing medical programmes in four regions for refugees from South Sudan, Eritrea and for Ethiopian citizens between 2014 to 2016. One of the programmes was in the Somali Regional State (SRS) precisely, in Doolo Zone. That project covered four Woredas (districts). Even though the four parts of great Somalia are in four different countries (two of them, Somaliland and Puntland are not officially recognized), they share similar socio-political, socio cultural and socioeconomic characteristics and factors. In all of them TB is a major public health concern. Improving access to needed healthcare, including TB has been a challenge to MSF. This mostly due to security, administrative and logistic reasons. In addition to the supply-side issues, demand of TB services is also a concern. As a Medical Coordinator, I was the end responsible for planning and designing the medical programme and strategies in the mission including the SRS project. For this thesis, I intend to use the experience gained, while working in the great Somalia region, the medical data generated by the Wardher project and contrast them with literature written about access to TB services aiming to shed light on access to TB care in Doolo Zone.

1.2 Background:

This chapter will present the general characteristics of the Somali Regional State (SRS).

1.2.1 General:

SRS is in the eastern part of Ethiopia. It is the second largest region in Ethiopia, it has an area of 350,000 square kilometres. As the map below shows (See figure 1), SRS is bordered by Oromia region in the west, A far region to the northwest, Djibouti to the north, Somalia to the east and southeast, and Kenya to the south(8). The capital is Jijiga in the north of the region. By 2016, the region had a population of nearly six million people. This number results from projecting data from the Census done in 2007 and applying the general population growth of Ethiopia (2.7% per year)(9). The average population density is 15 persons per square mile. The male to female ratio is 1.25:1(10). Nearly 86% of the population are pastoralist and agro-pastoralist (10). Thus, most of the population from SRS is constantly on the move. Because of the federal system, regional governments in Ethiopia have been granted political, administrative and fiscal powers (find the administrative governance system in annex 4). SRS has two levels of governance, the Regional Government (known as Somali Regional Government (SRG)), and below it, Zonal governments represented in nine administrative zones including Doolo. The Zonal governments include 68 rural Woredas governments and 4 city administrations. Doolo Zone (DZ) is one of the SRS nine Zones. Based on the 2007 census, the population in 2016 was around 360,000 people.

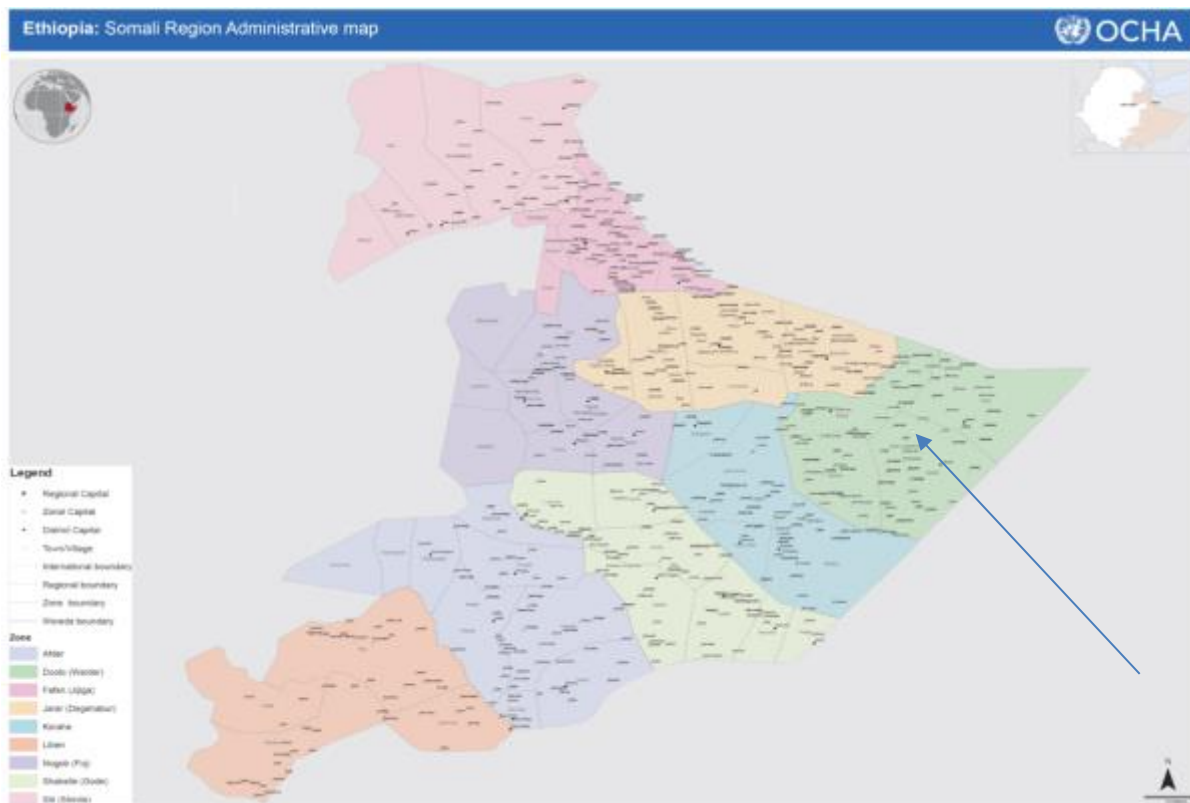


Figure 1: Ethiopia: Somali Region Administrative map(11). Source UNOCA. The arrow points to Doolo Zone (the green field).

1.2.2 Geopolitical situation:

The Somali region has been field of chronic conflict, swinging between active and silent ever since it was incorporated into the Ethiopian country at the end of the 19th century (12)(13). After the downfall of the Derg regime in Ethiopia in 1991, the establishment of the Somali

region state in 1993 led to the emergence of intra and inter-clan divisions. The division emerged from disagreements between the Ogaden clan (sub-clan of Darood; majority of the population) and the non-Ogadeni clans from Darood and other major clans. The Ogaden National Liberation Front (ONLF) is the only insurgency movement among the many movements started, during the fight against the Derg Regime, that is still active (13). The inter-clan conflict is not limited to the political sphere, it is also instigated by land, water and pasture disputes. The Ethiopian Government established a special police force for the Somali region in 2007 to counterattack the ONLF. Having such a special police force, adds to the already complex situation of the Region (14).

1.2.3 Rainfall and water supplies:

As the figure below shows, there are 2 rainy seasons per year in SRS. Gu season occurs from April to June which is the main season for agricultural activities, and the Deyr season from October to December. Of all the environmental shocks people in the region are facing, drought is the most common one. SRS as part of the eastern region of Ethiopia is vulnerable to drought. The drought in SRS is 2 times more frequent, compared to the rest of the country (15). Between 2006 and 2014, 7 out of the 18 rainy periods had rainfall below average (63 - 85% of average). Many of these dry periods occurred in a row. 2015/2016 has been the worst year in 3 decades. The El Nino phenomenon was very tough on the region but mainly on Doolo zone. This has led to the displacement of thousands of people (16). As mentioned before, a large proportion of the population in Doolo are pastoralists. The drought amplifies their need to keep on moving, looking for water and pasture for their cattle.(17). The movement of the SRS population seeking water, grazing land or services, including health is determined by their clan and sub-clan affiliation rather than administrative boundaries. They can go as far as Somaliland, Puntland and South-central Somalia.

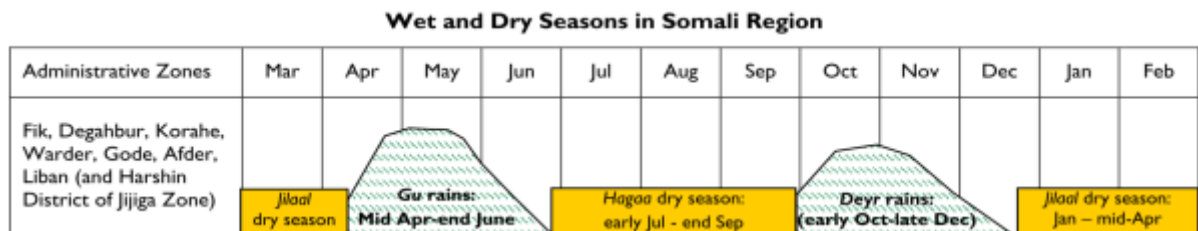


Figure 2: wet and dry seasons in DZ(18). Source: SCUK/DPPB field survey report.

1.2.4 Economy:

The main economic resources, the Somali community depends on, is animal husbandry and livestock products, crops/grains, savings, credit and cash remittance from abroad(15). Most of these resources are directly rainfall and climate-dependent. 52% to 67% of the population in SRS, live below the poverty line according to Recent studies from two different Zones(19,20). According to a World Bank assessment report, these levels of poverty are way higher than the national average situated at 30% (21). It is important to notice that the World Bank assessment excluded three pastoral zones which might have led to underestimation of poverty at national level.

1.2.5 Literacy:

Approximately 13% of the population are literate(10). Literacy goes down to 11% and 9% for male and female respectively among Rural pastoralist and agro-pastoralist. This is similar to the literacy rates in Doolo zone, according to a separate household survey(10). Partly due to their high mobility and low population density, pastoralist communities in the region, face difficulties accessing basic services(15).

1.2.6 Health System:

The Health System in Ethiopia is a three-tier health care delivery system: level one is a Woreda/District health system consisting of a primary Hospital (covers 60,000 - 100,000 population), Health Centres HC (1 for 15,000-25,000 population) and satellite Health Posts HP (1 covers 3,000-5,000 population). These facilities are linked to each other by a referral system. Patients, including TB suspects, are referred from the community by the HEW to the HP, from the HPs to the HC and then to the different levels of hospitals. The primary Hospital, Health Centre and Health Posts make a Primary Health Care Unit (PHCU). Level two is a General Hospital which covers 1-1.5 million people. Level three are Specialized Hospitals covering a population of 3.5-5 million people (22).

This system is not fully functional everywhere in the country, and certainly not in SRS. According to the WHO, the health system is failing to provide health care for more than half the population in the country. Most of the rural population has no access to any type of modern health care service. It is estimated that, while 75% of urban households are within walking distance from a health facility, only 42% of rural dwellers have similar access to health services (23). SRS is among the regions with the least coverage. The DHS 2016 showed that around one third of children under 5 who had an Acute Respiratory Infection and Fever, sought medical care at a health facility. This reflects problems accessing and using health services (24). The Zone has one general hospital (level 2) and the remaining health facilities are PHCUs. The only district Hospital (Wardher Hospital) covers the 360,000 population of the zone. This hospital used to be a Health Centre till 2007. After MSF started supporting it, the MOH upgraded the health Centre to a District Hospital.

1.2.7 Health profile:

Life expectancy has improved in the region since 1990. Nevertheless, it remains considerably lower than the national average which is standing at 63 and 67 years for male and females respectively (23). The improvement in life expectancy has been attributed to the reduction in the child mortality and the improvement of the general determinants of health (25). As table 1 below shows, the total fertility and under 5 mortality rates are; 7.1 and 122 respectively which are higher than the national ones which are 4.5 and 64 respectively. The main causes of under-five death, according to the 2014 WHO estimates for SRS, are acute respiratory tract infection (18%), diarrhoea (9%), prematurity (11%), sepsis (9%), birth asphyxia (14%), meningitis (6%), trauma (6%), measles (3%) and other causes (21%). Malnutrition was recently found to be an underlying factor in almost 50% of under-five deaths (24).

Table 1: General health indicators (Source: EDHS 2011)

Year	Region	Population	TFR*	Mortality Rates			Life Expectancy (years)		RNI*
				(per 1000 people)			Male	Female	
				IMR*	CMR*	Under5 MR			
2007 EFY	Somali	5,452,994	7.1	71	56	122	58.7	55.4	2.4

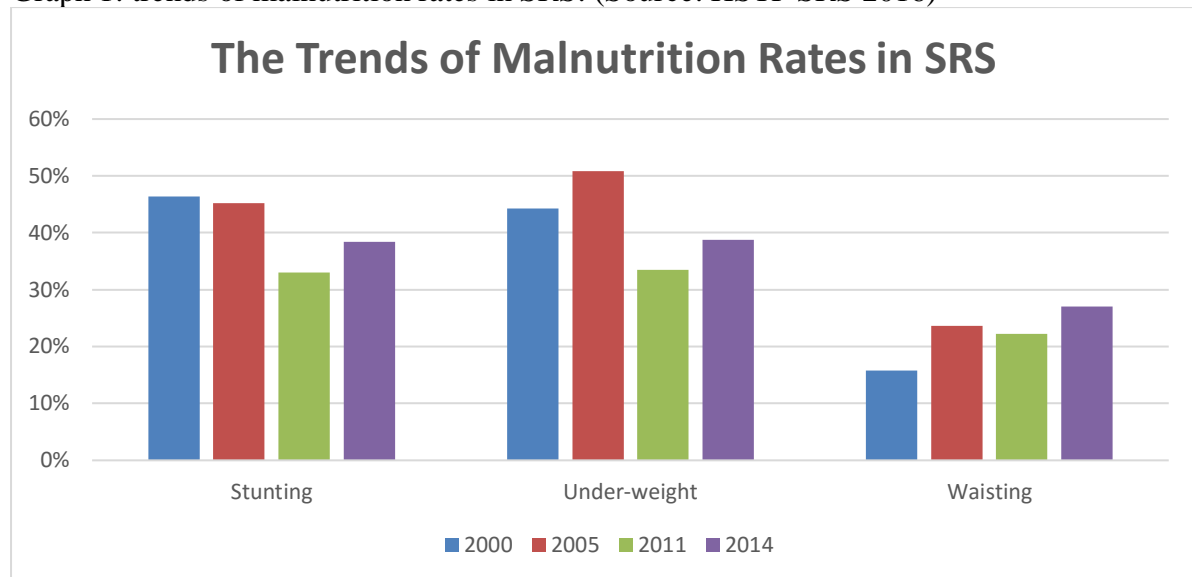
* TFR = Total fertility rate; IMR = Infant mortality rate; CMR = Crude mortality rate; RNI = rate of natural increase.

1.2.8 Malnutrition and Anaemia:

According to the HSTP 2016, malnutrition among 6-59 months old children is prevailing in the SRS. The prevalence of stunting, underweight and wasting, were found to be 38%, 38% and 27% respectively(25). These results in the graph suggest overall deterioration of the situation in 2014 compared to 2011 and a steady deterioration of the acute form since 2000 (see graph 1 below). These trends are expected to worsen in 2015, 2016 and 2017 due to droughts that have hit the region. According to the last DHS, 83% of under 5 children, 59%

of women within reproductive age, and 24% of the men in SRS are anaemic (24). Currently, there is a nutrition crisis going on in the Zone with thousands of cases being treated and under treatment by MSF and MOH(16,26)

Graph 1: trends of malnutrition rates in SRS: (Source: HSTP SRS 2016)



1.2.9 HIV:

According to WHO estimates from 2014, HIV prevalence has been on the rise in SRS. HIV prevalence has gone from 0.7% in 2011 to 1.1% in 2014(27). Furthermore, the WHO reported that 4.2% of the pregnant women in rural SRS going for the ANC(?) had a positive HIV test. This is the highest in the country (add reference). This report is not in agreement with MSF facility based data in DZ which identified a prevalence of 0.18% among over 8000 pregnant women tested in the Antenatal care programme between 2010 and 2016 (reference).

1.2.10 TB:

The first TB services in DZ, started in May 2008, with support from MSF in Wardher HC before it got upgraded to Hospital in 2009. Wardher remained the only diagnostic and treatment site till 2016 when MOH started TB services in Galadi HC and 34 patients commenced treatment(28). Anecdotal report, the lab technician left the HC since January 2017. This makes Wardher the only functional centre. MSF, through its outreach mobile clinic and support to some health centres, extended the health education, promotion, screening referral and follow up services to many sites in DZ. The boxes in the map below indicate places where MSF is extending its services including the TB one. Places highlighted in Yellow indicate places where MSF supported in the past. Except the outreach mobile team, all the staff in the services centre are MOH employees with financial incentive, technical support by an expatriate doctor, logistic and supplies from MSF. On the TB patients flow, check annex 3).

Wardher and later Danod has been part of the epicentre for the ONLF activities, which affected the government, to provide healthcare to the populations in these areas, but also hindered patients from accessing the provided services. MSF decided to support Wardher in 2008 and later in 2012 Danod Woredas. Many of the population especially to the East and South of Danod and XisiMaaf belong to the Isaaq Clan and Darood non-Ogaden sub-clans

like Dhulbahante (find the clan map in the annex). Some of the Mareehaan sub-clans concentrate in the southern part of Wardher, Galadi and Bokh (check the map of clans in the annex). To respond to the acute watery diarrhoea outbreak in 2009, MSF started supporting Galadi HC. Then in 2010 the support was extended to cover the OPD and TB programme. When the MOH put enough resources to run the HC, MSF withdrew end of 2011. Since the Bokh Woreda was not affected by the ONLF insurgency, the government was able to deliver services to the people (theoretically) beside its proximity to the Somali borders, MSF didn't extend its support to Bokh including TB.

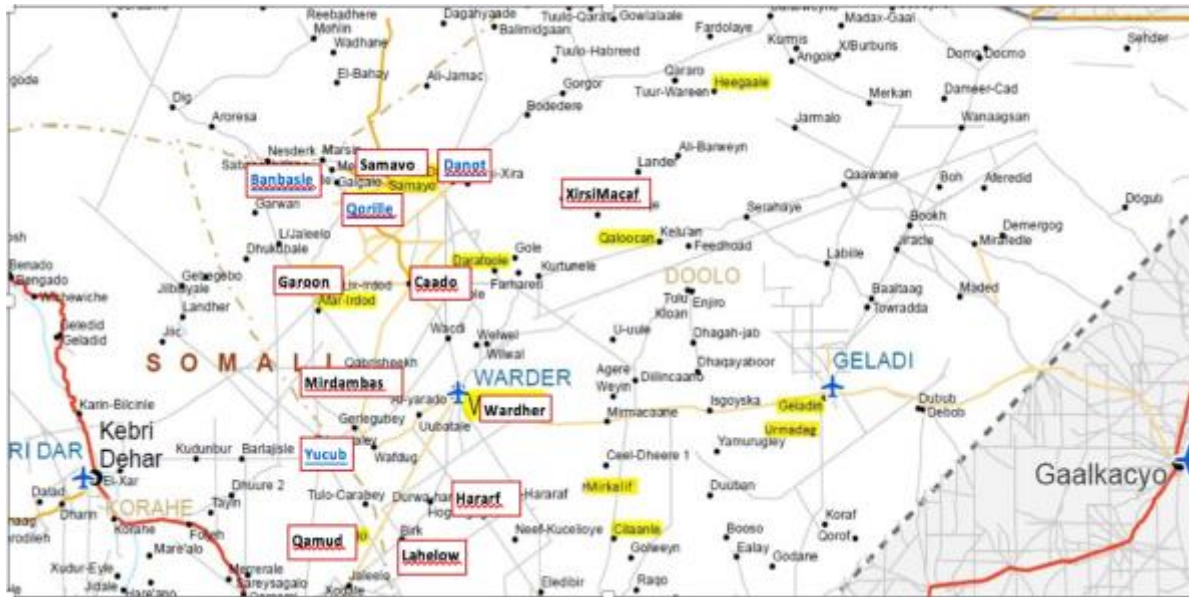


Figure 3: DZ map showing MSF operation sites (in boxes): source MSF Wardher project May 2017.

2 Chapter 2: Problem Statement, Justification and Methodology:

2.1 Problem statement:

Tuberculosis (TB), is among the oldest diseases known(29). TB is caused by Mycobacterium tuberculosis complex. The disease commonly affects the lungs but in one-third of cases other organs are involved. If appropriately treated, tuberculosis caused by drug-sensitive strains is curable in almost all cases. If untreated, the disease may be lethal within 5 years in over half of cases. The disease is transmitted through air-borne droplets produced by patients with active pulmonary tuberculosis (30).

Ending the global TB epidemic is among the Sustainable Development Goals (SDG). The WHO End TB Strategy, approved by the World Health Assembly in 2014, aims at 95% and 90% reduction in TB deaths and incidence rate, respectively by the year 2035, compared with 2015 (31,32). To achieve these targets, the main pillars are the early diagnosis of tuberculosis, systematic screening of contacts and of high-risk people, and commencement and completion of the appropriate treatment.

Despite the fact that there has been a major decline in the prevalence, incidence, and TB associated death rates in Ethiopia, compared to the situation in 1990, the country still ranks number ten among the high-TB burden countries in the world (33). According to the WHO in 2015, 25,000 Ethiopians (95% CI 15,000-38,000) died because of TB (HIV negative) and 191,000 (95% CI 141,000–249,000) had the disease (34). This can be translated to over 438,000 years of production lost only in 2015(35).

The situation, regarding TB, in SRS largely contrasts with the progress seen at national level. The national TB prevalence was adjusted to 224/100,000 from 421/100,000 in 2011 based on the national TB survey(36). This prevalence is further found to be disproportionately distributed across population sectors as table 1 shows. Pastoral and rural communities have a nearly 30% higher prevalence, compared to the national one. SRS has TB prevalence of 240/100,000 population (SRS Bureau of Health 2016). Based on this prevalence, it is expected to have over 14,400 and 860 TB cases in SRS and DZ respectively.

Nationally, 52% of the health facilities (excluding health posts) have diagnostic capacity using TB smear microscopy, 6% has chest X-ray and 2% TB rapid diagnostic test kits. Among the facilities with TB smear microscopy, only 11% and 12% have internal and external quality control systems established respectively, and 24% have both systems(37) The SRS Bureau of health declared the availability of the microscopic diagnostic and treatment capacity in all 9 hospitals, 106 health centres, 7 health posts, 5 private clinics, 8 refugee camps in the region. This claim needs to be looked at carefully because MSF reports from DZ, do not support this claim. In DZ there are 4 HCs and one Hospital. Two of these health structures offer TB diagnostic and treatment services. One is in Galadi HC which started in 2016, and the other is in Wardher Hospital which started in May 2008 with support of MSF. FMOH reported zero contribution from the private facilities claimed functional to the CDR in SRS(33).

Based on the national TB survey, the national case detection rate has increased from below 50% to over 70% (33). Nonetheless, this detection rate varies widely between regions, with SRS having the lowest case detection rate (CDR) as table 3 shows(38). A low CDR means that TB patients with open PTB, stay in the community and are being contagious for longer periods before starting treatment. This increases incidence in the community (negative externality), leads to more morbidity and might negatively affect the treatment outcome when commenced so late and the patient's condition is bad which is a public health problem. Between 2010 and 2016, there were 5357 patients tested for acid fast bacilli (AFB) and 1113 commenced treatment in Wardher Hospital. This number of patients commenced TB treatment is less than 19% of the expected number of patients over the past 7 years.

Based on the previously mentioned statistics there is a clear gap between population TB related needs, service provision and service utilization which creates a major public health problem.

Table 2. Prevalence of smear positive and bacteriologically confirmed pulmonary TB (per 100,000 population)

Setting	Prevalence of Smear positive PTB (100,000 populations), %(95% CI)	Prevalence of bacteriologically confirmed PTB (100,000 populations) %(95% CI)
Urban	68 (22-157)	230 (134-368)
Rural	101 (70-141)	235 (187-292)
Pastoral	166 (67-342)	290 (150-506)

(Source: TB prevalence survey 2010/11)

Table 3. Case Detection rate in Ethiopia:

Region	Case Detection Rate	Case Notification Rate
Tigray	66.1	163
Afar	99.3	245
Amhara	49	121
Oromia	52.5	130
Somali	21	52
Ben-Gum	47.2	117
SNNPR	53	131
Gambella	64.8	160
Harari	203.5	503
Addis Ababa	124	305.8
Dire Dawa	113.5	280
National	55	136

(source: Annual TB Bulletin FMOH Ethiopia 2015)

2.2 Justification:

Good understanding of the factors, that determine the access and use of TB services by the population from SRS, (mostly pastoralists and agro-pastoralists) is a cornerstone to reduce morbidity and mortality due to TB and to ensure that national and international targets are met. Pastoralists and agro-pastoralists are most of the population in SRS. There are few studies from Ethiopia and specially among pastoralists and agro-pastoralists that look at different factors that influence the access to TB care.

With this study, the author aims to gather and analyse evidence related to the access to TB care among a mostly rural and highly mobile population, living in an insecure setting. This analysis will be done looking from the perspectives of the supply and demand sides. The collected information will be contrasted against TB indicators from Wardher Hospital. This study also aims at identifying and describing best practices for addressing gaps related to access and use of TB services among mobile and rural populations.

Doolo Zone was identified as site for the study because it has never been studied and due to the availability of 7 years of TB data. The author has 2 years of experience working there and one more year of experience working across the border.

2.3 Research question:

What are the factors that influence the access to Tuberculosis services in Doolo zone in the Somali region of Ethiopia?

2.4 Overall objective:

To analyse the access to and outcomes of TB services in Doolo Zone, in order to give recommendations to the Somali region state, the national TB programme and the agencies involved in TB management for the strategies in the region.

2.4.1 Specific Objectives:

- A. To discuss existing policies and strategies addressing TB at country, region and zone level
- B. To analyse the TB data from Wardher Hospital in Doolo Zone between 2010 and 2016.
- C. To analyse the current barriers and opportunities with regards to access to TB services in the Doolo Zone and Somali Regional State
- D. To analyse the best practices, with regards to TB services provision, taking into consideration the population and the context of SRS.
- E. To give recommendations to the Somali region state, the national TB programme and the agencies involved in TB management for the strategies in the region.

2.5 Methodology:

2.5.1 Study design

2.5.1.1 the literature review:

The proposed objectives will be achieved through a literature review and through the analysis of secondary data.

A. Search strategy:

For the literature review, peer-reviewed articles were searched and obtained from different databases (VU Amsterdam, Scopus, and PubMed) and search engines (Google and Google scholar). A desk review of grey literature from relevant institutional websites (FMOH of Ethiopia, WHO, international Union Against TB and Lung Diseases, Stop TB Partnership and World Bank) was used too. Unpublished reports from MSF were also reviewed and analysed. Articles used in this study were less than 10 years old and were written in the English language. Articles published before 2007 were excluded except when deemed to be crucial and relevant to the study topic.

B. Key words

Tuberculosis, Pastoralists, Somali and Access are the keywords.

C. Search table:

Table 4: Search Tables:

Source	Objective A	Objective C	Objective D
Google	Ethiopia, Health, Policy, Tuberculosis, HSTP, NTP, Guideline, Somali, region, state		
Google Scholar, PubMed, Free University of Amsterdam, Scopus, CINAHL		Somali, Tuberculosis, pastoralists, nomads, agro-pastoralists, access, Health Literacy, health beliefs, trust, expectations, outreach, screening, information, transparency, personal and social values, culture, gender, autonomy, professional value, accommodation, location, opening hours, direct cost, indirect cost, income assets, social capital, health insurance, living environment, transportation, technical, interpersonal, adherence, caregivers, caretaker	Pastoralists, nomads, Tuberculosis, conflict, access, best practice, outreach, mobile clinics.

D. Conceptual framework

The conceptual framework used for this study is the interface of health systems and beneficiary's conceptual framework developed by Jean-Frederic Levesque, Mark F Harris and Grant Russell in 2013(39). This conceptual framework was chosen because it allows describing the access via broad dimensions. It incorporates demand and supply factors. In this model, seeking and using health services, are seen as a process with the following steps: the opportunity to identify healthcare needs, to seek healthcare services, to reach, to obtain or use health care services and to have the need for services fulfilled. The model looks at factors from the health system and of the users that play a role in each of the steps. These factors are organized into 5 dimensions: Approachability, Acceptability, Availability and Accommodation, Affordability and Appropriateness. The corresponding abilities of the beneficiaries are; Ability to perceive, Ability to seek, Ability to reach, Ability to pay and Ability to engage.

The characteristic that makes this framework patient-centred is that it places the actual process of seeking care at the centre of the analysis, including the different stages that a patient must pass through, to receive the required health care. This framework could provide the basis for a solid operational measurement of the different aspects related to the abilities of clients in interacting with the health system. Moreover, it may provide direction to policies, aiming at answering to certain needs, in the patients' abilities to promote access.

Limitation of the conceptual framework:

The limitations of the conceptual framework are related to the fact that it doesn't allow discussing the policies and strategies related to TB. This limitation is addressed through creating a separate specific objective for that which should fill this gap.

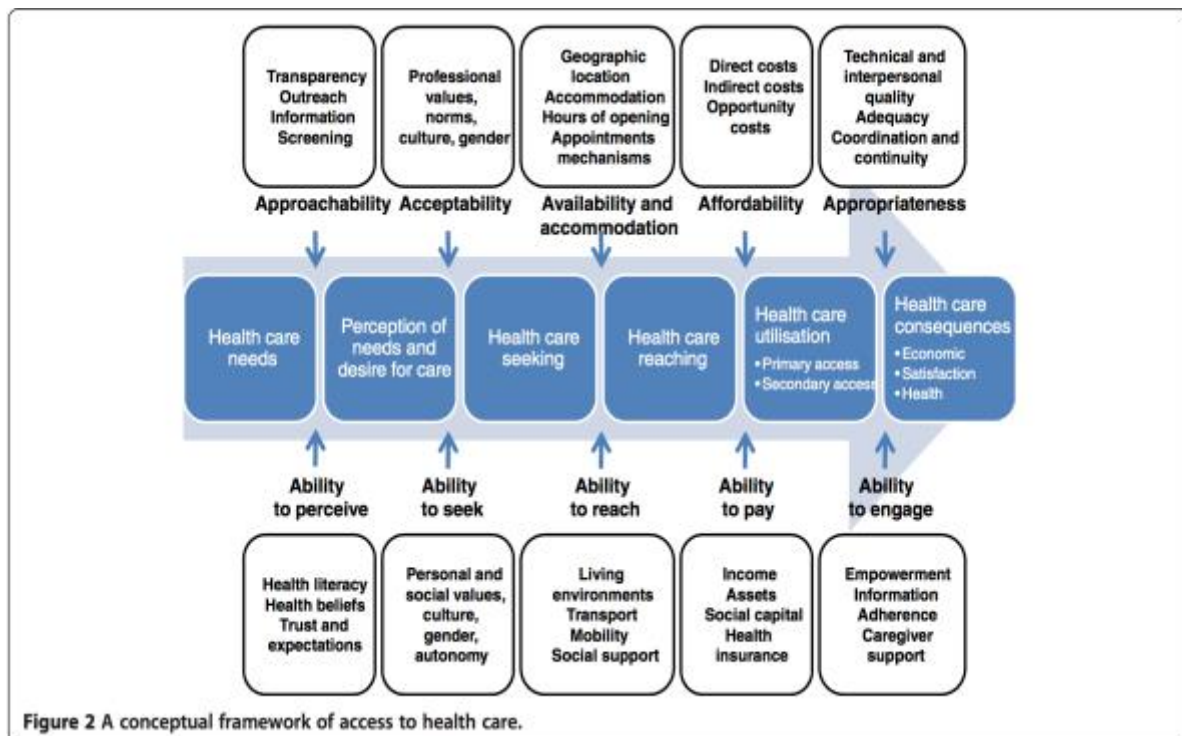


Figure 2 A conceptual framework of access to health care.

Figure 4: Conceptual framework(40): source: International Journal for Equity in Health 2013

2.5.1.2 Secondary Data Analysis:

Secondary TB data analysis is used to address one of the objectives of this study. Anonym TB treatment registers, Laboratory data and out-patient data were used from Wardher Hospital with the permission of a MSF medical director. The data analysed, covers the period from 1st of January 2010 to 31st of December 2016. The analysis will focus on individuals who used screening, diagnostic and treatment of TB services. The number of individuals who got a TB clinical screening was estimated using the number of individuals who attended the outpatient department with respiratory tract related complains. This number includes people with upper and/or lower respiratory tract infection as well as TB suspects. According to current clinical protocols, patients who are diagnosed with upper and/or lower RTI must to be clinically screened for TB. During this initial screening, the clinician asks for the presence, duration and association of cough, fever and weight loss.

2.5.2 Limitations of the study:

The desk review is limited by the fact that there was no SRS bureau of health specific website. It was hard to get the relevant policies, strategies and guidelines of the region. This problem was partially addressed through the support of some MSF colleagues who went to the bureau of health and asked for it in person. Some of these documents were in Word and Excel format, which makes the reliability uncertain. The literature review suffered from the fact that the Somali, TB specific qualitative studies found, were scarce and some were backdated beyond 10 years. This limitation was addressed through looking at studies done in similar contexts or for Somali population abroad. Wardher TB data suffered from incompleteness of many variables, due to the inconsistency of the way the variables recorded, as the data tool evolved overtime. There were errors in coding some variables too. Information about patients who were TB suspects sent to the lab for testing from the nutrition and reproductive health programmes was unfortunately missing. Some of the data limitations were addressed through crosschecking with TB and laboratory advisors from MSF as well as MSF field staff. Data of patients clinically screened in HPs and HCs run by the MOH, with no MSF support, was also missing as the author had no access to the MOH database. In the period from 2010 to 2016, 871 patients were diagnosed with PTB and commenced treatment in Wardher Hospital. Among them, patients who had a non-specific address such as, far sites or pastoralist, were excluded in the Woreda-based analysis. The exclusion done was based on the far mobility of those people who might have come from outside DZ or even the country. Due to clan and political reasons, Wardher Woreda got split into 4 Woredas between 2012 and 2016. Patients came from the new Woredas are given Wardher as address in the TB database. Due to this fact, the analysis refers to 4 Woredas instead but includes the 7 ones. Although Wardher had been the only TB centre for years, it is known that people from certain clans and sub-clans seek care including TB in other zones of SRS, Somaliland, Puntland and South-Central Somalia making the utilization of Wardher hospital not representing the real access in DZ. Although the national TB treatment protocol indicates that all patients who visit the outpatient's services should be clinically screened for TB, the author considered only the ones that had respiratory tract diagnosis as being screened for TB, for making a better assumption that TB related symptoms and signs were probably checked during the consultation. These limitations do not affect neither the internal nor the external validity.

3. Chapter 3: Results:

In this chapter, I will try to answer the research questions I posed. I will start reviewing the available policies from the MOH and MSF in relation to TB in the region and among pastoralist communities. Then I will analyse TB data from Wardher Hospital, aiming to understand better, the pathway of care followed by people diagnosed with TB. Through the

analysis of secondary data I will be able to have an overview of the flow of patients since they are identified as TB suspects until they complete treatment. The literature review and the desk study will explore and analyse the available knowledge about the determinants of the access to TB care, among highly mobile rural communities living in areas affected by conflict. The identified gaps and opportunities will be complemented with the best practices available to address them.

3.1 Existing policies, strategies and implementation:

3.1.1 National HSTP:

The Federal ministry of health (FMOH) launched the Health Sector Transformation Plan (HSTP) in 2016. While the TB component within early strategies of the Health Sector Development Programme (HSDP I & II) which started in 1997, concentrated on integrating TB and leprosy control programmes with each other (TLCP). The focus of the HSDP III was fundamentally on improving CDR and completion of treatment. HSDP IV adopted initiatives that were in line with the global STOP TB Strategy. These initiatives were; the community based TB care, Childhood TB care, putting TB/HIV co-infected patients on ART, strengthening public private mix (PPM) strategy, strengthening programme management of MDR TB testing and TB infection control, empowerment of patients and communities through wide network of HEW and Health Development Army (HAD) mainly for pastoralist and agrarian communities. Focussing on building research capacity Ethiopia has established the TB Research Advisory Committee (TRAC) having the MOH serving as its secretariat. Although these strategies have probably contributed substantially to the national improvement on the TB situation, there were major shortcomings. These shortcomings are mainly related to the decentralization of the TB care. The component of community-based TB care did not reach the proposed coverage target of 80% of health posts due to several reasons such as shortage of human resources, supplies and supervision capacity. Only 29% of health posts were providing tuberculosis screening and/ or treatment follow up. Although the PPM was one of the pillars of the HSDP IV, the contribution of public private partnership was around 13%(41). Therefore, the new HSTP is focussing on reinforcing and promoting the HEP, especially for the pastoralists and rural populations for the sake of improving access to health care, among those communities, including access to TB care. It also relied on the integration of the TB, Leprosy and the coordination with the HIV programmes.

Following the WHO recommendation, Ethiopia adopted the use of the fluorescent light-emitting diode (LED) microscope instead of the conventional Ziehl-Neelsen (ZN) light microscope. Ethiopia also adopted the strategy to avail one culture and sensitivity lab per 5 million populations. Only 6% of the labs are using LED microscopes and only 7 Laboratories have culture and sensitivity capacity as well as 28 Xpert machines in the country, none of them is in SRS(41). Xpert is recommended only for HIV positive and children(6)

3.1.3 SRS HSTP:

The SRS HSTP is based on the national one, taking in consideration the regional context and needs. The TB control programme of the Somali region has similar objectives to the NTP, which targets interrupting transmission of the infection, reducing morbidity, mortality and disability, preventing the spread of DRTB, reducing the burden of TB among persons living with HIV /AIDS (PLWHA) and reducing HIV incidences among TB patients. The fundamental strategies, to achieve these objectives are: early case detection, adequate and appropriate chemotherapy, provision of comprehensive responsive patient care and strong TB/HIV collaboration(25). The feasibility of these ambitious and relevant targets should be looked at carefully. Despite the good ideas presented in the HSTP, implementation remains a

challenge. As an example, the new TB centre in Galadi HC has no lab technician from January 2017 till August 2017.

Most of the SRS population don't speak the Amharic language, which makes speaking Somali language an essential condition to work in SRS. Furthermore, federalism as system and policy is intended to empower the local communities by domesticating jobs, has limited the human resource options. In line with the national HSTP, the SRS HSTP has paid much attention to the HRH. One of the strategies adopted and relied on, to increase retention, is the continuing professional development (CPD)(25). In SRS, this policy is implemented in a way that is not ensuring a continuous presence of adequate staff in the health facilities throughout the year.

3.1.2 Health Extension Programme:

In 2004, the Government of Ethiopia introduced the Health Extension Programme (HEP) to promote the universal health coverage (UHC). This programme offers a free at point of care primary health care package with four components including TB disease prevention and control. The health extension worker (HEW) is a new cadre of health professional introduced nationally. HEWs are community health workers (CHWs) who are inside the national payroll scheme. HEWs have completed secondary school education and are trained for one year in basic health service delivery. They are selected from their communities where they will serve. They are supposed to work at the health post level for 25% of their time and in their communities for the remaining 75%. Over 38 000 HEWs are employed in Ethiopia, contributing to a significant increase in health service coverage in recent years. Their role in TB is limited to health education, promotion, identification of suspected patients and referral, follow up on DOTS, as well as defaulter's tracing(42,44,43,44). Although the health authorities in SRS acknowledged that the HEP model doesn't fit the pastoralist's need, due to the high mobility of the latter group, they didn't suggest any modification to improve the situation(25).

3.1.4 MSF:

Since MSF functions in collaboration with MOH in SRS, it has adopted the national TB policy in general. To increase access to TB care, MSF has complemented the strategy with some measurements, targeting reducing direct and indirect cost among others. This will be discussed in detail in the best practices part.

3.2 Wardher TB programme and data analysis:

In this part, I will analyse the PTB specific data from Wardher Hospital between 2010 and 2016. As table 5 below shows, among the age group 0-14 years old, there is no much difference between male and female who commenced TB treatment. While among the other age group, as well as overall, the difference between male and female is considerable in commencing TB treatment compared to the national one per the WHO figures in table 6 below. This shows that men commence TB treatment more than females in Wardher Hospital.

Table 5: PTB patients accessed treatment in Wardher per Sex and Age Group 2010-2016 pop:360000

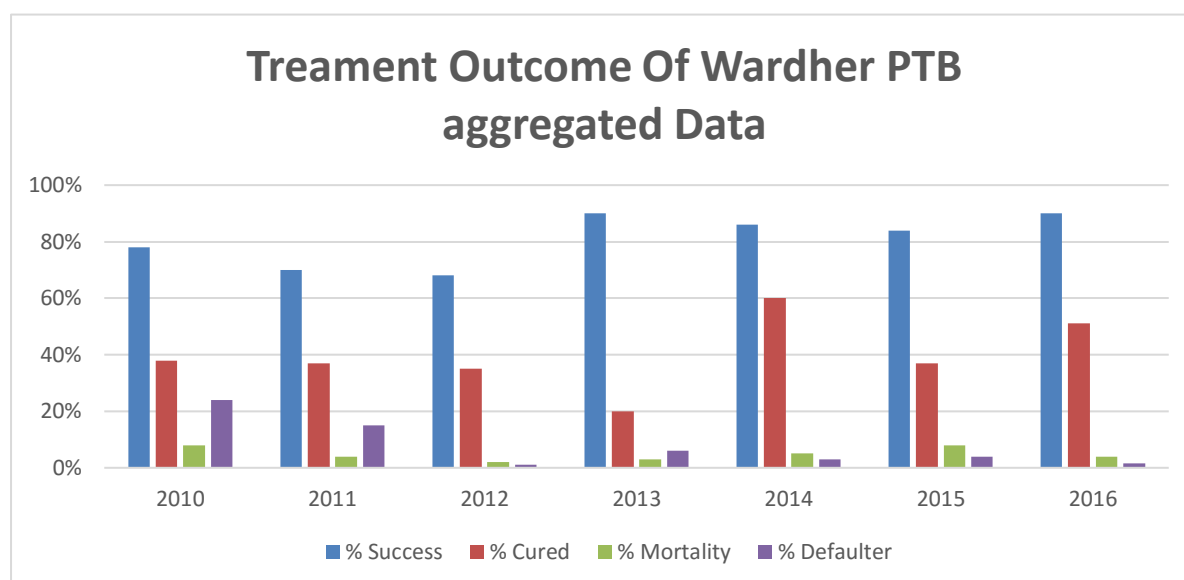
	0-14 years	> 14 years	Total
Females	32	216	248
Males	31	506	537
Female: male	01:01	1: 2.3	1: 2.2

Table 6: Estimated national burden (thousands) Ethiopia pop: 99 million (WHO 2015 report)

	0-14 years	> 14 years	Total
Females	7.3 (2.2–12)	77 (50–105)	85 (52–117)
Males	11 (6.9–15)	95 (70–120)	106 (77–136)
Total	18 (12–24)	173 (143–203)	191 (141–249)
Female: male	1: 1.5	1: 1.2	1: 1.2

As graph 2 below shows, the overall success rate among the bacteriologically confirmed PTB patients has improved since 2013 to 2016. This could be due to the improvement of adherence due to the regular provision of the incentive to the patients, starting with food and then changing to a monetary incentive in 2014. The cure rate kept fluctuating over time being the least in 2013, reasons for that are unknown. The mortality rate overall stayed below 5% but went in some years up to 8%. In 2015/16, the expat doctor who oversaw the TB ward, extended his/her support to the outreach sites including Yucub HC, which made the focus on the TB ward less than before. That might have contributed to the increased mortality rate.

Graph2: Treatment Outcome of PTB in Wardher Hospital between 2010 and 2016:



3.2.2.1 Overview of access at different levels:

As table 7 below shows, on average, 4% of the population per year used outpatient services, complained from respiratory problems and was diagnosed with different respiratory tract infections. Out of them, 5% had access to the AFB test. Around 20% of the expected PTB patients, commenced treatment on average, except in 2010 the percentage went up to 31%. This could be related to the drought and malnutrition crisis that hit the region and Somalia, leading to the influx of people coming to Wardher, Yucub looking for water and support or might be due to the increased incidence due to the malnutrition. The 20% of the patients expected utilized the TB service in Wardher and is in line with what was reported by MOH for SRS (21% CDR), The completion of treatment overall is 75% and has always been 70% or more which is reasonable. It went up to 92% in 2013 but reasons are not clear. The overall cure rate is 36% compared to the bacteriologically confirmed PTB which is over all 80% and reached 90% in 2013 and 2016. This could be because only 58% of the PTB patients, who commenced treatment, have a smear-positive result, which might suggest that some patients were put on treatment unnecessarily. There was a low success rate in 2015 and a low

percentage of patients commenced treatment in 2016. This could be due to the starting of provision of TB services in Galadi in 2016, where some patients who were admitted in 2015, got transferred to from Wardher and the 34 patients commenced treatment in 2016 as well as the high mortality in 2015 in Wardher hospital. The improvement of the success rate from 2013 onwards with exception of 2015 as explained earlier could be due to the introduction of the incentive given to the patients on the continuation phase, starting with regular food ration in 2013 then changed to monetary incentive in 2014. The mortality rate remained within the 5% except in 2010 and 2015. In 2010, the reason could be the poor nutrition status due to the nutrition crisis. in 2015, the expatriate doctor who supported the TB ward had to extend his/her responsibility to Danod, Yucub HCs and the other outreach sites too, which might have reduced the quality of the TB in-patient's care. The data below suggests that people in DZ have a bigger problem accessing treatment compared to adhering to it.

Table 7: Overview of access to different levels of PTB care in DZ. Population: 364000:

Overall the Doolo Zone Total Population is: 364000																
	2010		2011		2012		2013		2014		2015		2016		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Expected PTB Cases	513		527		542		557		573		588		605		3906	
clinically Screened	22199	7	19229	6	14303	4	7536	2	8148	2	13962	4	14274	4	99651	4
AFB test*	929	4	686	4	1105	8	829	11	691	8	721	5	396	3	5357	5
Tested positive*	98	13	67	14	86	9	72	11	74	12	74	13	65	21	536	12
Started Treatment	162	31	118	22	97	18	100	18	100	17	106	18	102	17	785	20
Completed Treatment	114	70	81	69	74	76	92	92	86	86	84	79	55	54	586	75
Cured	56	35	41	35	37	38	21	21	58	58	37	35	31	30	281	36
Lost to follow up	32	20	23	19	13	13	5	5	1	1	4	4	1	1	132	17

*this is the total number of patients tested including EPTB patients. The database doesn't specify the type of the specimen and since it is impossible to differentiate, I report all the patients tested.

3.2.2.2 Overview of Wardher Lab Data:

Although overall, only 5% of the patients who got clinically screened, had the AFB test, there was a very low positivity rate (12%) and low quality of samples produced by patients (around 60% overall) as table 8 below shows. The percentage of patients who didn't complete testing is very high. It is 20% overall and reached 30% in 2011. The MOH changed the testing algorithm in 2016 from 3 samples, which required staying overnight to complete the test, to two samples (spot and two hours later spot) to follow the WHO recommendation and reduce the dropout of patients on screenings. It was not clear why this measurement didn't reduce the 20% figure in 2016 but, it might be due to the poor technical support to the lab. MSF assistant laboratory advisor visits the project every 3-6 month and the advisor once per year. The low positivity rate could also be due to poor adherence of the clinicians to the case definition. Since Wardher laboratory is the only diagnostic centre in DZ, this poor performance may have contributed to the poor access to TB care in DZ.

Table 8: Wardher Laboratory performance overview:

Lab Data																
	2010		2011		2012		2013		2014		2015		2016		total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
AFB test*	929		686		1105		829		691		721		396		5357	
Did not complete the test	156	17	207	30	140	13	186	22	148	21	137	19	79	20	1053	20
Tested positive*	98	13	67	14	86	9	72	11	74	12	74	13	65	21	536	12
Good quality sample		?		35.5%		1		52.2%		53.3%		56.7%		74.5%		59.7%

*this is the total number of patients tested including EPTB patients. The database doesn't specify the type of the specimen and since it is impossible to differentiate, I report all the patients tested.

3.2.2.3 Overview of Wardher Woreda:

As Table 9 below shows, during the period between 2010 and 2016, 13% of the population of the Woreda had access for clinical PTB screening every year, 78% of expected PTB patients commenced treatment with a 78% success rate, a 37% cure rate and a 10% defaulter rate. Generally, the rate for utilizing treatment has always been more than 60% except in 2016,

this could be related to the fact that MSF stopped OPD services in Wardher Hospital as well as that some outreach sites where the MOH started providing these services, hence, less patients got screened by MSF, diagnosed in clinics and received treatment. There were some variations from year to year based on ability to regularly visit outreach sites due to administrative, logistic, security and HR factors. Change in operation sites and programme components as well as the possible influx of patients or change in incidence overtime might also lead to the variations. Utilization rates in Wardher are much higher than the overall DZ. This might be due to the availability of the services in Wardher Hospital as well as the outreach mobile clinics. The convenience of Wardher population to seek care in Wardher because of clan affiliation and the availability of the natural and artificial water reservoirs in Wardher, Yucub Mirdambas and Lahelow where services are provided regular might also have increase the utilization.

Table 9: Wardher Population Size in 2016 is: 73388

	2010		2011		2012		2013		2014		2015		2016		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Expected PTB Cases	105		108		111		114		117		120		123		796	
clinically Screened	17692	24	16611	23	10829	15	3997	5	4536	6	7424	10	7137	10	68226	13
Started Treatment	141	135	105	98	85	77	72	63	80	69	80	67	61	49	624	78
Completed Treatment	106	75	74	70	64	75	76	106	67	84	63	79	34	56	484	78
Cured	53	38	36	34	32	38	13	18	47	59	26	33	21	34	228	37
Lost to follow up	24	17	20	19	11	13	4	6	1	1	4	5	0	0	64	10

3.2.2.4 Overview of Danod Woreda:

With the support to Danod HC in 2012 and then the extension to 5 outreach sites around Danod town, MSF managed the access to healthcare including the TB clinical screening of the population from 12% in 2012 to 24% but the percentage of the patients who commenced treatment remained low. Overall only 28% of the expected PTB utilized the service in Wardher. The start-up of MSF services didn't make the expected difference in access to TB care, except in 2013 when it reached nearly 50% according to table 10 below. The reason for the increased access in 2013 was not clear. Danod town is around 65 km north-eastern Wardher. The strong clan and sub-clan politics and clashes makes PTB patients from other clans and none-Ogaden Darood sub-clans uncomfortable to go to Wardher for TB treatment which takes months. The refraining from seeking medical care in Wardher from the Isaaq Clan and sub-clans was observed even when urgent medical assistance was needed during inter-clan clashes. The wounded patients were sent to Lassaanood and Hargeisa in Somaliland instead to Wardher. This is the reason why MSF has constructed a TB centre in Danod to bring the service where people feel comfortable to utilize. The data also shows that the defaulter rate reduced probably due to the introduction of the incentive in 2013.

Table 10: Danod Population Size in 2016: 30115

	2010		2011		2012		2013		2014		2015		2016		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Expected PTB Cases	43		44		45		47		48		49		51		327	
clinically Screened	0	0	0	12	3474	12	3539	12	3612	21	6538	22	7137	24	24300	11
Started Treatment	13	30	9	20	10	22	23	49	11	23	11	22	16	31	93	28
Completed Treatment	5	38	7	78	8	80	21	91	10	91	9	82	4	25	64	69
Cured	3	23	5	56	3	30	5	22	6	55	4	36	1	6	27	29
Lost to follow up	5	38	2	22	2	20	1	4	0	0	0	0	1	6	11	12

3.2.2.5 Overview of Galadi Woreda:

Galadi Town is around 120 km (straight-line) from Wardher. Galadi has a mixture of clans and sub-clans affiliated to different parts of the Somali region. According to MSF data, <1% of the population had access to the clinical PTB screening, less than 5% of the expected cases had access to treatment, 38% of the ones commenced treatment got cured and 7% defaulted (find table 11 below). There were 34 patients commenced treatment in Galadi HC in 2016.

These figures show how poor the utilization of TB care is in Wardher by patients from Galadi. Overtime, the number of patients commenced treatment, dropped in 2011 and 2012 towards the end of the MSF support period and the famine in Somalia, then started picking up after, that is probably because of the introduction of the incentive, which started as food ration then monetary in 2014. Probably the stop of the MSF support to TB programme in Galcayo played a role too. The numbers of patients continued to increase even after the start of the project in Galadi by MOH. Starting the TB service in Galadi might have increased the community awareness, screening and improve the utilization not only in Galadi, but also in Wardher. All defaulters were from, before the introduction, of the incentive programme.

Table 11: Galadi Population Size in 2016 is: 126932

	2010		2011		2012		2013		2014		2015		2016		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Expected PTB Cases	181		186		191		196		202		207		213		1377	
clinically Screened	4507	4	2618	2	0	0	0	0	0	0	0	0	0	0	7131	1
Started Treatment	8	4	4	2	2	1	5	3	8	4	13	6	21	10	61	4
Completed Treatment	3	38	0	0	2	100	4	80	8	100	10	77	15	71	42	69
Cured	0	0	0	0	2	100	3	60	4	50	6	46	8	38	23	38
Lost to follow up	3	38	1	25	0	0	0	0	0	0	0	0	0	0	4	7

3.2.2.6 Overview of Bokh Woreda:

Bokh is the farthest Woreda in DZ. It is over 150km far from Wardher (straight-line). It borders Somaliland, Puntland and south-central Somalia. It has the highest population among the other Woredas in DZ with 133,488. A big part of the population is non-Ogaden Darood sub-clans like Mareehaan and Majeerteen and some Hawiye and Isaaq sub-clans.

As table 12 below shows, no report of patients screened for PTB is available. Less than 0,5% of the expected PTB patients commenced treatment, 70% completed treatment and 50% got cured. None of the 7 patients who commenced treatment lost to follow up. It is noticed generally that when people come from far, they adhere better to treatment. This is maybe because it takes strong commitment to come that far and commence treatment from the beginning. It is not clear why those few patients (1-4) started coming to Wardher after 2013, but it could be linked to the withdrawal of MSF from Galcayo hospital (Somalia) in 2013. the poor utilization of Wardher TB services by the Bokh population could be due to the far distance, lack of transport, lack of MSF support and connection as well as clan affiliation.

Table 12: Bokh Population Size in 2016 is: 133488

	2010		2011		2012		2013		2014		2015		2016		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Expected PTB Cases	190		196		201		207		212		218		224		1448	
clinically Screened	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Started Treatment	0	0	0	0	0	0	0	0	1	0	2	1	4	2	7	0,5
Completed Treatment	0	0	0	0	0	0	0	0	1	100	2	100	2	50	5	70
Cured	0	0	0	0	0	0	0	0	1	100	1	50	1	25	3	43
Lost to follow up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3.3 The factors that influence the access to TB care:

3.3.1 Approachability and ability to perceive:

From the approachability angle, SRS is an area of a protracted conflict and insecurity that severely hinders the public sector's ability to deliver basic social services to rural areas including information, promotion and health education (45). Tuberculosis services that offer diagnosis and short-course chemotherapy which is free of charge through the TB control programme, are only located in major towns in SRS. The Outreach programmes in the region are restricted to the pilot programme, that was launched in two Woredas in the region. This pilot programme had a good outcome in terms of increasing the CDR in these Woredas(46). In this programme, MOH convinced non-governmental organizations (NGOs) to integrate TB health promotion, education, screening and referral in the nutrition, child and maternal health

programmes they were running. In Doolo Zone, MSF is doing an outreach programme, visiting 5 sites in Wardher Woreda and 5 sites in Danod Woreda once a week. MSF is also running outreach programmes in Dighabour Zone, but only on the main road due to security and administrative limitations. These visits are not very regular as it depends on the approval from the zonal authorities. The permission from the authorities is influenced by the security situation which in some cases hindered the programme for weeks at a time. Clinical screening for TB is expected to be done for all outpatient facilities and by HEWs in the community. This is possible, because TB prevention and control, is part of the core tasks of the HEWs(33,47). Nevertheless, the contribution of the HEP, in the case detection in SRS, is around 20% which comes mainly from cities and towns of the region, with very few coming from the pastoralist communities(48).

In a cross-sectional study, including 380 pulmonary TB (PTB) patients, it was found that 76.3% of the patients never received health education and around 14% didn't even know that there were HEW's in their Kebeles. This indicates of a very poor dissemination of information about the disease, services and initial clinical screening, all of which lead to delays in seeking care for TB(48).

From the angle of the client's ability to perceive, the health literacy and knowledge in general and around TB was repeatedly found to be very low. The knowledge was found to be much less among women, rural, poorest and pastoralists(49–52,45,53–55). These findings were similar to what was found in other places, that have similar population characteristics like the Afar region of Ethiopia and the Belet-Weyne district of Somalia (55,56). The low level of knowledge is mainly related to what causes TB and how to treat it.

Evidence showed that many people in SRS, attribute the disease to a nutrition imbalance, Chat Chewing and smoking(54). Nur in his study in Belet-Weyne, found out that most of the patients believed that TB was caused by a bad cold, tough work, physical trauma, smoking, inheritance, witchcraft and evil eye. Patients also believed that TB should be diagnosed and treated by a medical doctor in a hospital only(56). Interestingly, these beliefs were shared by nomadic pastoralists in Kenya, Chad and Mauritania cited by(53).

In their 2008 study, Gele & Ali, found out that; chronic cough was not associated with TB or any other disease as some people cough for years and yet look healthy. They also found that when TB is suspected, patients use traditional herbal remedies(53). Mawe and TiireIt herbs are widely believed by pastoralists to treat TB. These herbs are widely available in markets, but are relatively expensive. It is believed to treat diseases characterized by cough; ranging from the common cold to TB(54)(53). Herbal treatment is believed to be the best option and usually the first one used. Even when biomedical care is sought, it is often complemented with herbs(45). The believe in the herbal medicine as a first option or complementary to the western medicine was also documented by R. K. C. Finnie in the systematic review of studies on delay of TB/HIV patients, seeking care in Sub-Saharan Africa(57). In contrast, the prioritization of the traditional medicine, over the biomedical one was not found in the recently conducted qualitative study done by MSF in DZ on access to reproductive health care (unpublished study by Beverly Stringer 2016). Hill et al. in his study which examined six different case studies including Somalia, a low expectation of clients from the public sector was identified(58).

The above-mentioned aspects and factors associated with both the supplier and the client's side, could add to the body of factors that might negatively affect the access to the biomedical care of TB in SRS and DZ.

3.3.2 Acceptability and ability to seek:

In this part, I will discuss factors relating to culture and social norms, gender and autonomy values from both provider's and clients' perspectives.

On the attitude of the health workers and their responsiveness towards TB suspected patients, that would influence the access to TB care, there was no literature found. Abdi Gele, in both mixed methods and the cross-sectional studies, did not identify gender as an influencing factor for TB related health seeking behaviour(52,53). This finding is also in line with what was found in a cross-sectional study carried out in the Hawasa Oromia region. The Hawasa study didn't find a significant association between delay in seeking care for TB and gender, though they acknowledged that more men were being screened than women. They suggested either failure of women to seek medical care or system related gender bias towards women in the health facilities as reasons for the male female difference. This difference doesn't support the first statement of no gender influence(51).

Some evidences showed that there is less social stigma attached to TB in SRS. According to the regional health official, most out-patient clients in health facilities demand TB testing. When they are tested negative, many of them refuse to accept the result and try to bribe the lab technician to get a positive result(53). Although this claim sounds extreme, it indicates that pastoralists consider TB as a serious disease. This finding differs widely from the evidenced stigma for TB on pastoralists in Chad and Mauritania as well as the finding of a systematic review of 58 studies including studies from Ethiopia and Somalia(59,60). The low stigmatization of TB patients in SRS is also different from that evidenced in the neighbouring Oromia region(61,62).

In a community-based cross-sectional study, which involved 410 randomly selected individuals in Shinile town in SRS, the community's reaction towards TB disease was found to be serious. More than half of the study participants considered TB as a very dangerous disease. 71% of the interviewees said they would go to the health centres for medical care had they experienced TB-like symptoms(54).

A qualitative study done on Somali migrants in the United States of America found out that Somalis believe that the Quran has a healing property and the disease is God's will but seeking biomedical care is allowed and comes second sometimes(63)

Despite some difference in some studies, overall, the findings in this part don't suggest it being a major barrier to accessing TB care in SRS.

3.3.3 Availability, accommodation and ability to reach:

In this part, I will touch upon the influence of the geographic location, accommodation, hours of opening, living environment, transportation, mobility and social support on access to TB care from supplier's and client's perspectives

On the availability side and as mentioned earlier, there are only two TB centres in the Wardher Hospital (started in 2008) and Galadi HC since 2016(64). These two centres cover an area around 25000 square km of DZ. All patients identified as suspected TB in the other 3 HCs in DZ should be referred to Wardher Hospital for confirmation and initiation of treatment.

Some literature found, that the median distance from the patient's residence to the nearest public health facility, where patient first sought biomedical care for their current illness, was around 24km(53,65). However, this median distance is over two-fold higher for nomadic pastoralists (36km) compared to agro-pastoralists (16km). Similar distance to health facilities were reported from pastoralists in Northern Kenya(66). According to my experience in the Zone, this finding underestimated the real situation in DZ. As mentioned earlier, there are only 4 HCs, one hospital and very few health posts covering the need to a population over 360,000 scattered over 25000 square km. Widespread poverty, on top of the resource allocation bias in many African countries, resulted in clustering of limited investment in towns, despite the fact that large proportions of their population are rural, pastoral or

nomad(53). This finding is supported by the result of the systematic review of studies done in conflict affected countries, including Somalia(58).

On the impact of the living style of the clients, literature found that the agro-pastoralist groups live as semi-urban people near health services during wet seasons. However, during dry seasons they get pushed to migrate looking for water and grazing land, which is away from health facilities. If they fall sick during this time, they must wait till they return in the wet season. The establishment of a health facility in any location is determined by the population density. Health officers interviewed in that study explained the difficulty the health system is facing to set health care for pastoralists. Being mobile, not fulfilling the 3000 to 5000 population number required for a health post and inability to commit to the DOTS were mentioned as reasons for this difficulty(45). As a result, pastoralist dominated areas of SRS are deprived from health services with a specific challenge TB services.

According to the FMOH, distance from the health facilities is among the main reasons for the low utilization of the health services provided by the FMOH(22). Nationally, for all facilities, 42 minutes is the average travel time from the health facility to the ambulance station on different road types by different modes of transport. In the Somali region, the average is over 79 minutes(37).

In a big sample study done in Addis Ababa, where transportation is certainly better than SRS, a delay in seeking biomedical care for TB was found and attributed to the distance from the health facilities among other reasons(67)

Since there is only 60km paved road in SRS none if in DZ, most of the regional and all the zonal roads are seasonal and the major transportation is by animals such as donkeys and camels(53). Public transport is not available, except between towns. Renting a vehicle is still a possibility but prohibitively expensive.

The value of the social solidarity and support the Somalis have, is unique both inside Somalia and the Somali region state. This is the same when they are abroad(68,69). This value helps in arranging support during illness, including TB.

These finding suggest that service availability, distance to scarce centres, transport and inflexible policies in designing care as major barriers to access TB care in DZ.

3.3.4 Affordability and ability to pay:

In this part, I will discuss the direct, indirect and opportunity costs as well as the income, assets, social capital and health insurance as factors that determine the affordability and ability to pay from the supplier and client's perspectives.

As the WHO reported, a globally significant proportion of people with tuberculosis, encounter a catastrophic financial burden, related to the direct and indirect costs of both the illness and the health care, even when diagnosis and treatment are offered free of charge(32). This fact may significantly hamper the access to care, which influenced the WHO to set strategies to tackle this barrier (31)

An evaluation of the TB programme progress in Ethiopia reported that 36% of the total national TB expenditures are bore by households as a direct cost. On top of this, there are unmeasured indirect and opportunity costs. The household costs of TB diagnosis and treatment have been reported to be from 35% and up to 71%(70). In a cross-sectional cost-of-illness analysis study, which was conducted among 576 randomly selected adult TB patients who were on directly observed treatment in 27 public health facilities in Addis Ababa, TB patients were found to be suffering from high out-of-pocket (OOP) payments with catastrophic consequences(71).

A systematic review of studies done in Sub-Saharan Africa, including Ethiopia, concluded that for many households, TB treatment and care-related costs were catastrophic(72).

A study in the Tigray Region, interviewing 924 patients, found out that; the average costs to diagnose one patient which was paid by a patient, a caretaker and the health system were 29, 23 and \$7 US\$ respectively.(73). This finding indicates a very high direct and indirect cost bore by patient compared to the health system. It was also reported that rural residents have a higher cost(74). If this is the situation in the Tigray region, which in comparison to SRS is relatively developed, then the cost is expected to be higher in SRS, which might contribute to the poor access. A comparative qualitative and quantitative study, exploring welfare status in rural Kenya and Madagascar, suggested that every poor family interviewed, could eventually trace its poverty to an asset or health shock(75).

On the client's side, a systematic review of studies done in 58 countries including Ethiopia, associated the delay in seeking care for TB, to lacking health insurance(76). The Ethiopian Health Insurance Agency (EHIA) has been established and started functioning. The social health insurance and community based health insurance schemes have been piloted in 13 districts in Amhara, Oromia, south nations and the nationalities people region (SNNPR) and the Tigray Regional States(41). The health insurance scheme does not exist in SRS.

The main economic resources, the Somali community depends on, is animal husbandry and livestock products, crops/grains, savings, credit and cash(15). So, selling livestock, borrowing money, family or clan support are the only available mechanisms which are essential for seeking care for TB as it encounters high cost. The strong social solidarity and support, among the SRS population plays a major role in seeking health care(68,69).

The literature mentioned in this section suggests that, the main barriers are the very high and catastrophic cost, limited income mechanisms, unavailability of health insurance while the social capital and solidarity were enablers.

3.3.5 Appropriateness and ability to engage:

From the supplier's side, while the SRS specific HSTP reported the availability of the TB diagnostics services in all facilities including 5 private ones(25), the Annual TB bulletin, reported zero contribution of the private sector in the TB case notification in SRS(33). Even though the annual report is 6 months older than the HSTP, the situation of the TB service is unlikely to change during 6 months. The report is also in line with what MSF found in DZ where 3 out of the 4 HCs have no TB services. The referral system clarifies the pathway of the patients from the community to the TB centres. Nonetheless, the means to facilitate these referrals are lacking. Coordination between TB treatment centres is a major challenge according to MSF's experience. Feedback on patients, referred or transferred to other facilities is hard to get due to communication challenges. The human resources are found to be a major limitation factor for the continuity of the health services in SRS(37). The health care financing reforms (HCFR) that were agreed in the HSDP IV to retain health facilities revenue from 20% to 100% to improve the service, was substantially achieved in Ethiopia except in SRS and Afar and two city administrations(41).

A systematic review that looked at information and training needs assessed by 35 studies in some countries including Somalia, suggested a substantial lack of knowledge, about the basics diagnostic and case management on common diseases(77). this is often associated with suboptimal, ineffective and dangerous practices(77). In a cross-sectional study included 136 PTB patients in Addis Ababa, it was found out that, the levels of implementation of the national treatment guidelines (NTG) were low. Only 54.1% of diagnoses adhered to the NTG(78).

The quality of paediatric TB care in Ethiopia, including SRS, is recognised as a challenge and requires appropriate measurements to be taken(79). The policy indicates a free TB care but no support for the caretaker or covering of the complementary treatment which is a major barrier.

From the client's side, although the empowerment of the communities and patients is considered as a cornerstone to increase access and adherence to TB care and preserve the dignity of patients in much of literature from the WHO, FMOH and other scholars(68,80–83), there was not much studied in SRS on this aspect that was found. Empowerment was enabled effectively by education, literacy and continuous communication with the communities. For the pastoralist, these services are challenges.

Overall, the literature suggests that a lack in strong technical capacity, proper coordination, sustainability of services as well as weak involvement and empowerment of the communities as major challenges.

3.4 Best practices:

Several researches from Ethiopia and abroad have demonstrated that the rigid enforcement of DOTS conflicts, with patient autonomy, dignity and integrity as well as created barriers to accessing and or adherence to TB care. DOTS, especially when applied in its strictest forms, expose the patients, who have TB, to extra burdens and costs. Socially disadvantaged groups face the highest burden(84,85,81,86,87). The current practices are contributing to the current situation which necessitates adjusting the current approach to fit the client's context, need and demand.

3.4.1 Self-administered treatment (SAT) SRS:

A cohort study done in SRS, adapted the DOT strategy for 390 pastoralists TB patients to comprise a shorter intensive phase at the health facility (2 weeks for new patients, 8 weeks in the event of re-treatment), followed by a self-administered TB treatment, showed 81.2% treatment success rate, 6.7% death rate, 9.2% lost to follow up and 0,3% treatment failure which is a better outcome compared to the regional one(88). This strategy is also found effective in an area which has limited access to healthcare in India(89)

3.4.2 MSF Doolo Zone:

Although the MSF intervention in DZ was never studied and it is not considered best practice with proven effectiveness, the data analysis suggested a promising outcome.

MSF in DZ, has complemented the national policy, with some measurements to reduce the direct and indirect cost as well as bringing the service close to beneficiaries. Mobile clinics providing PHC including clinical screening for TB and ambulance service are carried out to several sites where MOH health posts are not established or functional (find the map below). Complementary treatment for comorbidities or side effects, food for patients and caretakers is provided, while admitted during the intensive phase, are provided by MSF(90). During the follow up phase, patients are provided with food rations and a monetary incentive. The monetary incentive was also proven effective in improving adherence to the Isoniazid Preventive Therapy (IPT) for HIV positive patients in Ethiopia(91). Patients who have a follow up could come to any of the outreach sites on the day of the scheduled site visit and get transport to the hospital from MSF. These measurements have yielded a good outcome as the data analysis of Wardher hospital shows.

3.4.3 MSF Cherrati Woreda:

MSF in collaboration with NTP in September 2006, piloted a TB village approach in Cherrati to overcome the distance, indirect cost and accommodation, which were major barriers to access and adherence to TB. Patients were illegible to stay in the TB village if they have no one in Cherrati to accommodate and support them for the duration of their TB treatment. Cattles that are brought by patients could graze on the land surrounding the village. During their stay in the village, each patient and one care giver received a free staple diet, water and

non-food items. Patients and their caretakers were provided with kitchen areas to cook for themselves. This approach was found to be effective for improving the access to TB care, ensuring good adherence to treatment and yielding a good overall TB outcome.(92)

3.4.4 Involvement of traditional healthcare providers (THP) Burkina Faso:

The involvement of THPs has been suggested among strategies to increase tuberculosis case detection in Burkina Faso. THPs are offered incentives based on the numbers of suspected cases they referred and confirmed by health workers at TB centres. It was evident that the distribution of tasks among THPs, intermediary organizations and clinicians was appealing, especially the accent on active referral.(93).

3.4.5 Health Education and promotion in Mauritania:

Towards tuberculosis control strategy in a mobile context, the prevalence of clinically suspected tuberculosis cases, among adult nomadic pastoralists in Chad is high. Nomadic pastoralists in Chad and Mauritania perceive tuberculosis as a common disease. They consider tuberculosis incurable as well as an inherited disease. They are unaware of the existence of a treatment. Furthermore, tuberculosis is a stigmatised disease. These initial results of a Mauritanian sociologist, conducting a comparative study between Mauritanian and Chadian nomadic pastoralist communities, justified further studying on adapted information campaigns in the zone of Bassiknou in Mauritania, using the self-esteem, associative strengths, resourcefulness, action planning and responsibility (SARAR). Images were based on identified knowledge and behaviour and messages of the NTP were adapted to the pastoralist context involving the community. Some of the nomadic community members, including traditional healers, were trained in prevention, recognition and treatment of tuberculosis and to continuously inform their communities. Following that approach, a considerable increase in the numbers of nomadic pastoralists has been registered at the TB diagnostic centre of the zone(94).

3.4.6 Active case finding strategy in Nigeria:

Active case finding for TB, among nomadic populations, was implemented from January 2012 to December 2013 in the Adamawa state in Nigeria. A total of 378 community screening days were organised and executed with community leaders and community volunteers provided treatment support. Comprehensive information and dissemination through Television, Radio and community leaders were done. An advanced Xpert was made available for nomads with negative smear results at diagnostic centres. During these screening camp days, 96,376 nomads were verbally assessed, resulting in 1,310 bacteriologically positive patients. The number of patient, who had an AFB test state-wide, increased by 112% in comparison to the 2 years before the intervention. The new smear-positive CNR increased by 49.5%, while notifications of all forms of TB increased by 24.5% in comparison with expected historical trends(95).

3.4.7 instructional video for sputum production and submission Tanzania:

In a randomized control trial in Dar es-Salaam a culturally adapted instructional video for sputum submission was prepared and used. 200 presumptive TB cases, coughing for more than two weeks, who attended the outpatient department of the Hospital, were assessed. It was found that the 97% of the patients understood the video instruction very well and the positivity rate of the samples tested was double the control group and concluded that, the sputum submission instructional videos increased the yield of tuberculosis cases through better quality of sputum samples(96).

3.4.8 The use of Xpert:

A multicentre implementation Study was done in South Azerbaijan, Philippines, Africa, Peru and India on efficiency of Xpert. Its sensitivity was 77% in smear-negative, culture-positive samples and 99% specific. Use of the Xpert test reduced median time to treatment for smear-negative tuberculosis from 56 days CI (39-81) to 5 days CI (2-8).

The study concluded that the Xpert test can effectively be used in low-resource settings to simplify the patients' access to early and accurate diagnosis, thereby potentially decreasing morbidity associated with diagnostic delay, dropout and mistreatment which is further adopted and recommended by the WHO(7,97).

4. Chapter 4: Discussion, Conclusion and Recommendations:

4.1 Discussion:

In this part, I will bring together the different elements identified in the results of the 4 specific objectives in the previous chapter. I will follow the central process of the conceptual framework by discussing its determinants, crosschecked with the existing policies, findings of the data analysis and link it to the best practices.

Concerning the health care need in SRS and DZ, as documented in the literature mentioned earlier, the TB burden is the highest and the CDR is the lowest among the Ethiopian regions. SRS is among the least developed regions. Most of the population is pastoralists and agro-pastoralists who move in a very wide area extended to neighbouring regions and countries. The services provided are falling short to meet the growing TB public health concern. Wasting is high and on an increasing trend since 2000 among under five-years, 83% of under-five children, 59% of women within the reproductive age, and 24% of the men in SRS are anaemic. Currently (in 2017), there is a nutrition crisis going on in the zone as well as an acute watery diarrhoea outbreak, with thousands of cases being treated by MSF and MOH. MOH and MSF have shifted their attention to these urgent issues. The population also prioritizes water and food over seeking or adhering to chronic care. This might aggravate the situation further.

In relation to perception of need and desire for care, to contribute to improving access from supplier side, services can make itself known among various social or geographical groups. Different elements such as transparency, information regarding available treatments and services and outreach activities could contribute to making the services approachable. On the other hand, the ability to perceive is the notion, that people who are encountering health problems, can notice that some form of services exists, reachable, and have positive impact on their health improve access from client side.

Based on the literature findings, clustering of services in towns, shortage of outreach activities, HEP, HAD, protracted conflict, low literacy as well as some believes play a major role in hindering access to TB care in SRS including DZ. The data showed that people in places where service made itself known and convenient through outreach health education and regular screening, had better utilization of the limited TB care in DZ. The national HSTP stressed on improving the HEP and HAD for rural and pastoralists as mainstream, which was reconfirmed by the SRS specific HSTP, but without clear strategy on how to achieve this goal. The geographically limited contribution of some NGOs in the integration of TB services in their routine activities, outreach programmes helped to improve CDR in their operational areas. In Mauritania, the mobile health education and promotion programme, involving pastoral community members including traditional healers, yielded a good outcome.

When it comes to health care seeking, the culture and social norms, gender and autonomy are values determine the possibility for people to accept the aspects of the service. To large extent, these factors are expected to have similar influence on both the clients and the providers as most of the staff in the region and especially the remote zones such as Doolo are from SRS.

the literature from the region didn't find associations between gender and access to TB care. This finding is not supported by the data from Wardher which showed a wide difference in the utilization between male and female patients. The MSF experience in Somalia suggests gender influence of access in favour of females during inter-clan conflict period which is yet to be studied. Stigma too was not found to be associated with TB or influence access, in contrast, it does to Oromia and Mauritanian pastoralists. Probably stigma is not a problem as the data showed that in places where services are provided and made convenient to people,

the utilization was high. TB is considered a serious disease and people have positive attitude towards it. The cultural values and norms are shared between clients and providers because most of the health workforces are Somalis. Sharing these values has positive and negative implications. The positive one is, it avoids the language barriers as most of the Somalis in SRS don't speak other Ethiopian languages and reduce the cultural sensitivity. The negative one is related to the fact it limits the human resource pool in SRS. The use of the traditional herbal or Quran healing was found to be a complementary measurement rather than a barrier. Generally, the cultural values are not found to create major barrier to access TB care. The HEP and HDA strategies are meant to reinforce these values through the health education and promotion. Based on the strategy, these programmes are linked to the health posts. Where there is no health post, there is no HEP. Lacking flexibility in implementing the strategy or room for innovation is freezing these strategies in wide area in SRS. The health education and promotion programme helped in Mauritania as well as the partnership with MSF in SRS. On health care reaching, literature reported a distance in SRS from the patient's residence to the nearest public health facility as 16 km to over 36 km for settlers and pastoralists respectively, although these distances create concern compared to WHO standards, this figure seems widely underestimating the distance in DZ where only two TB service centres exist. Also, taking into consideration lack of paved roads and public transport, the distance is amplified as barrier. This finding is in line with the literature which suggests clustering of services in cities. It is further supported by the PTB data of Wardher Hospital, which suggests better utilization of TB services where services are brought close to people like Wardher compared to other places like Bokh. Movement of pastoralists in the dry season was identified by literature as a challenge to reach health facilities. This factor didn't affect the utilization much in Wardher, because services are provided in sites where Birkas, wells and lakes exist and probably for those patients who had no clan sensitivity which would bias the finding. Lacking the required number of the population to set PHCU and the low probability of pastoralist to adhere to DOTs were indicated as challenges for MOH to set services in SRS. The reality in many places where the required numbers of residence are fulfilled, services are not set or not functioning. The new SRS HSTP does not propose a clear strategy to address the access of pastoralists to health care and the HEP is still directly linked to the HPs. The PPM with for profit and none for profit ones is one of the important strategies addressed access issues, especially in places inaccessible to MOH, due to security reasons. The clan's and sub-clan's politics that pushed SRS government to split Wardher Woreda which ranks 3rd among the 4 Woredas in the zone, in terms of area and population into 4 Woredas, reflects the complex clan politics. This political acknowledgement needs to be followed by service provision based on the clan mapping. The refraining of some clan members in DZ to utilize services provided in another clan's territory, reflects the lack of trust and necessitate bringing the service closer to them by government or through an independent partner. Setting the services in places where water is available, running mobile clinics, adopting SAT, setting TB villages and running active case findings with collaboration of the pastoral communities have addressed the access issue in many places in and outside SRS.

When discussing the health care utilization, several literatures in and outside Ethiopia agreed in suggesting high direct, indirect and opportunity costs as barrier to accessing TB care and leading to impoverishment of the population when utilizing the services. Lacking health insurance systems in many parts of Ethiopia including SRS, plays additional role in increasing OOP catastrophic expenditure and limited access. Due to many factors in SRS and DZ such as, unavailability of public transport, paved roads or close services centres, the indirect cost is expected to be much higher than many other parts of Ethiopia. The adherence to the national TB treatment protocol was found to be very low (54.1%). This finding is

further supported by the Wardher laboratory data, where among the clinically screened patients, low percentage tested for AFB and nearly 50% of the patients who commenced treatment were smear-negative. This result also suggests low quality of TB care. The positivity rate of the AFB in the lab was around 12%, indicating either weak adherence to the case definition, poor explanation to the patients for producing good samples or poor testing skills of the laboratory technicians. These findings could substantially hinder the access to PTB care even when people overcome all barriers and reach the service centres. The coordination between the treatment centres is limited due to the limited supervision capacity, transportation and communication means. The continuity of the services was found to be affected by the limitations in human resources, supply, finance and supervision. Evidences show that information and empowerment of the rural and pastoral community is lacking, same as other services. The HSTP states a free of charge TB care based on the END TB strategy, aiming at protecting TB patients from financial hardship associated to TB care utilization. It also puts accent on the empowerment of communities and patients but there are no measurements set clearly to achieve these goals such as reducing the complementary direct or indirect cost and create a platform to open discussion with pastoralists communities to address their needs. The EHIA is still in the pilot stage and far from implementation in SRS. Some strategies with high impact were tried in SRS, other parts of Ethiopia and abroad managed to address this issue. Based on the data of the Wardher TB programme, the MSF programme in Wardher, where services are brought closer to people through outreach, referral services are arranged to facilitate follow up visits and monetary incentive is paid to reduce travelling cost, is a promising strategy but it requires systematic evaluation. The MSF programme in Cherrati, where accommodation is provided to the patients and caretakers for the period of treatment, is also an option that managed to reduce the cost and enables patients to access TB care. Health education and promotion is done in Mauritania, active case finding is done in Nigeria, the instructional videos for sputum collection in Tanzania, involvement of the THP done in Burkina Faso.

The study suffered from many limitations starting from accessing the SRS policies and strategies, limited qualitative literature on access to TB care in the region and the incompleteness of the Wardher TB data. The conceptual framework also doesn't allow discussing the policies, strategies which is why IT IS discussed as a separate objective. The limitations are not considered to affect the validity of the study.

4.2 Conclusion

Despite the comprehension of the national and SRS HSTP and the accent put on pastoralist community in the HEP and HDA, there was no clear strategy that allows reaching out to these communities. This could be due to the poor knowledge about pastoralists and lacking involvement and empowerment of these communities which necessitates doing further in-depth studies and researches. The strategy did not clearly address the huge complementary direct and indirect cost of commencing and adhering to TB treatment, which is a major barrier.

Wardher TB data analysis, agreed with the very low CDR in DZ but moreover with the wide inequity of access between the different Woredas. Woredas that have services made available through fixed and mobile services and shorter distances to screening and treatment centres, have much better access to TB care. Early mentioned factors and clan affiliation played a clear role in accessing TB care.

Except for a few sites, where TB services are provided or outreach activities are carried out by MSF, the dissemination of the services information is limited in DZ. Low health awareness and literacy rate, traditional health believes and gender are negatively affecting the access to TB care too. The few services centres that are serving a widely-dispersed and

regularly mobile population, hamper their access further. The very high direct complementary, indirect and opportunity cost caused by commencing and adhering to TB care in SRS where there is no health insurance scheme, is found to be a major barrier. Studies on detailed understanding of population movement during wet and different levels of dry season are a gap in knowledge to better plan services. Coordination between MOH and education institutions is identified as gap and barrier to build good HRH without disrupting running programmes.

There are many practices implemented in many sites within SRS and in other places within Africa, where population characteristics and context is comparable to SRS that yielded positive outcomes and addressed some determinants identified as barriers to access that could be replicated in DZ and SRS.

4.3 Recommendations:

To MOH, SRS, NTP, private partners and donors:

- E. The policy might consider addressing the direct cost created by the complementary management including extra laboratory tests, comorbidities and side effects and the indirect cost created by the long hospitalization including food of the patients and caretaker.
- F. The HEP and HAD strategies needs to be adapted to the pastoralists lifestyle based on a better understanding and involvement of these communities in planning the services
- G. Improvement of the coordination between MOH and the education institutions is essential to avoid the gaps in service provision
- H. Regular TB screening campaigns are proven effective strategies for pastoralists to increase the CDR and might be considered with involvement of the pastoralist communities.
- I. Where the level of health education is good, SAT might be followed otherwise, setting up a TB village could be an effective strategy to attract and adhere TB patients to treatment.
- J. Training of clinicians and laboratory technicians on the TB management protocol and regular supervision is required to improve the CDR.
- K. Smear-positive highly suspected PTB patients should be tested using the Xpert test regardless of their age or HIV status.
- L. Culturally tailored instructional video for sputum production and submission needs to be implemented to improve the laboratory screening of TB in all diagnostic centres.
- M. More strategically placed TB service centres need to be created by MOH or through PPM based on a good understanding of the migratory patterns of the pastoralists' communities and in sites accessible to different clans and sub-clans.
- N. Robust new qualitative studies, on the factors influencing the access to healthcare and TB particularly, are needed to bridge the gap in knowledge in this domain.

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6. Chapter6: Annexes:
6.1 Annex 1: Map of Somali Clan in the region.

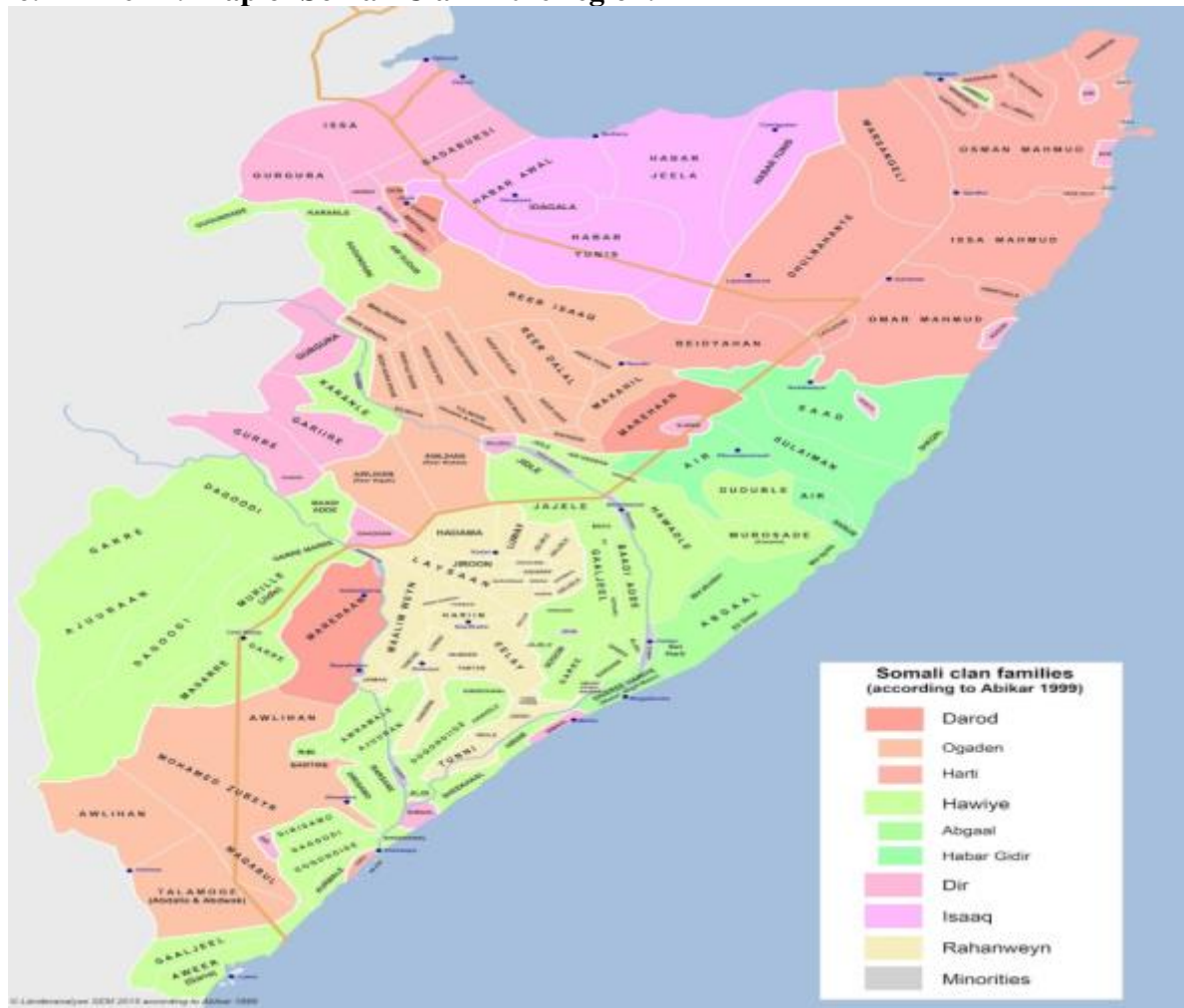
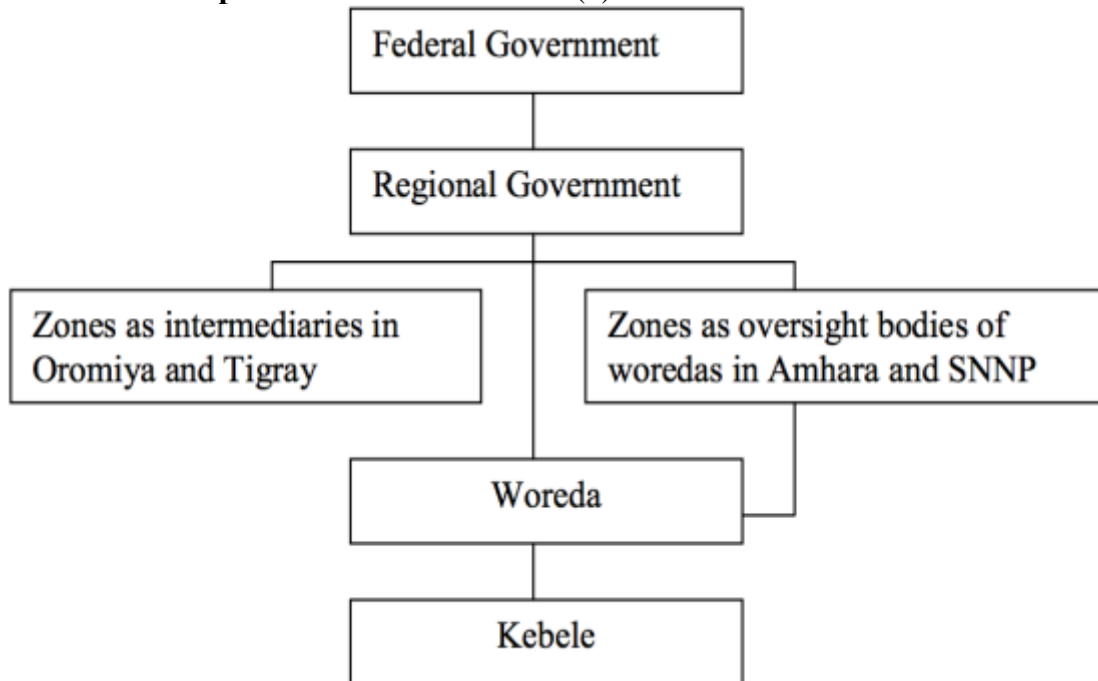


Figure 5: Somalis map Clan Distribution in Kenya, Somalia, Ethiopia & Djibouti(98).
 Source: Kenya Somalia Consortium.

6.2 Annex 2: Ethiopia Governance Structure(5): source: The World Bank:



6.3 Annex 3: Patients Flow in Wardher TB programme:

The TB patients flow in Wardher hospital is as following; TB suspects are sent from TFP, maternity department, in-patients (IPD) department and outpatients department (including outreach) to the laboratory for bacteriological testing. Patients will get the results and return to the clinicians. Patients who are diagnosed with TB whether they were tested positive or negative, will be admitted in the TB treatment centre in Wardher or sent to the appropriate treatment centre if s/he is diagnosed with disease other than TB (please find the diagram below).

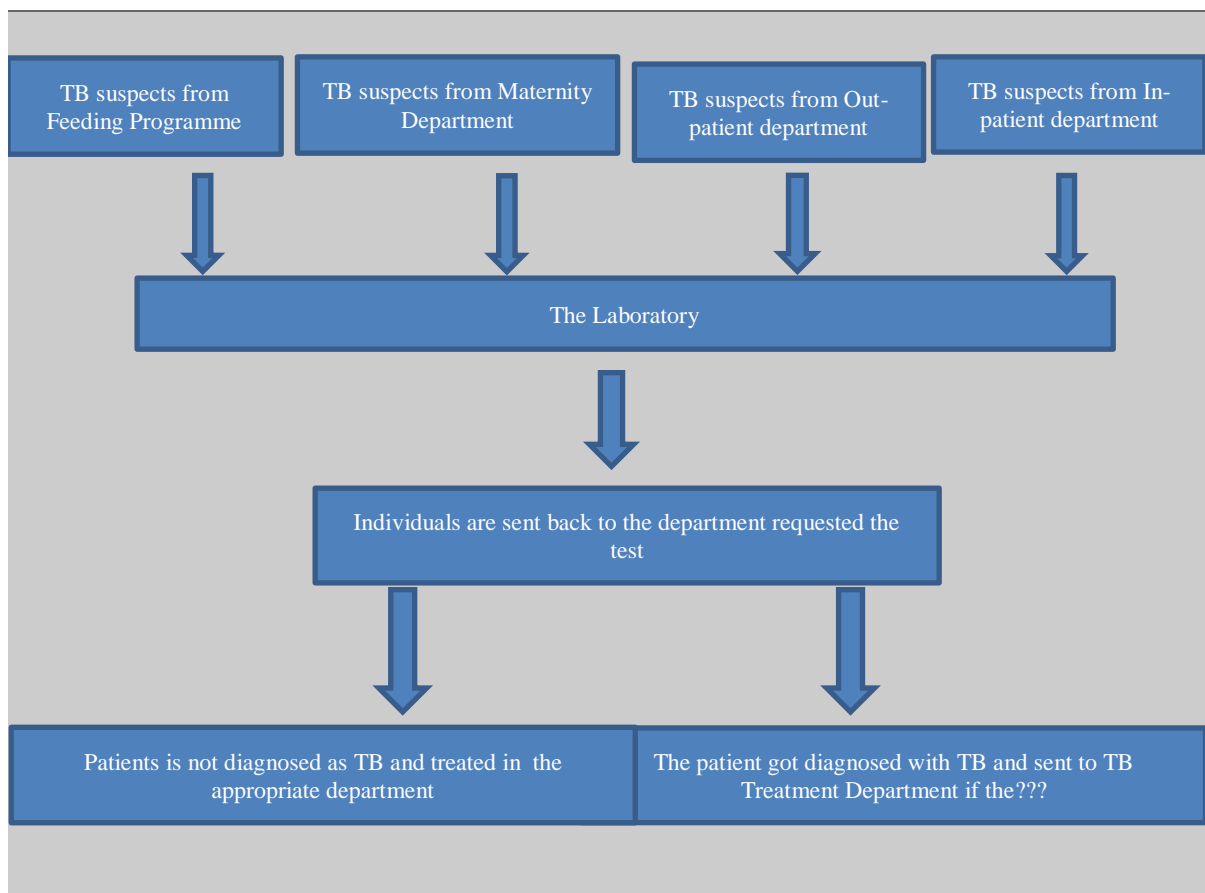


Figure 6: Patients flow chart: