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**COLLAGE OF HEALTH AND MEDICAL SCIENCE**

**PREVALENCE AND ASSOCIATED RISK FACTORS OF PULMONARY TUBERCULOSIS AMONG PRESUMPTIVE PATIENTS IN HIWOT FANA SPECIALIZED UNIVERSITY HOSPITAL, HARAR, EASTERN ETHIOPIA**

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**A RESEARCH PROPOSAL TO BE SUBMITTED TO DEPARTMENT OF MEDICAL LABORATORY SCIENCE,HARAMAYA UNIVERSITY COLLEGE OF HEALTH AND MEDICAL SCIENCE, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE (BSC) IN MEDICAL LABORATORY SCIENCE**

**HARAR, EASTERN ETHIOPIA**

**Jan 26, 2017**

**HARAMAYA UNIVERSITY COLLAGE OF HEALTH AND MEDICAL**

**SCIENCE**

**DEPARTMENT OF MEDICAL LABORATORY SCIENCE**

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**HARAR, ETHIOPIA**

**Jan 26, 2017**

# ABSTRACT

**Back ground:-**Tuberculosis (TB), one of the widest spread infectious diseases, is the leading cause of death in the world. Nearly one third of the world’s population is infected with *Mycobacterium tuberculosis* (MTB) and hence at risk of developing active disease. TB is one of the major causes of morbidity and mortality in the horn of Africa with Ethiopia carrying a heavy burden; it is the third most populous country in Africa. So far there was no latest report on the prevalence and associated risk fator of pulmonary tuberculosis among the presumptive patients in Hiwotfana specialized university hospital.

**Objective:** - To determine the prevalence and associated risk factors of smear positive pulmonary tuberculosis among presumptive patients in Hiwot Fana Specialized University Hospital, Harar, Eastern Ethiopia

**Methods: -** A cross sectional study will be conducted on 165 PTB presumptive patients visiting Hiwot Fana Specialized University Hospital from Feb 6, 2017-March 6,2017. Socio demographic and risk factor data will be collected by using pre-tested structured questionnaires. Sputum sample will be collected from study subjects and will be processed by zehel neelson staining technique and examined microscopically. Data will be checked for any incompleteness or inconsistency and will be processed and analyzed by using SPSS Version-16 software. Descriptive statics will be used assess the association between the associated risk factor and pulmonary tuberculosis(PTB).

**Expected value:-**.The result obtained from the study will be used to determine the prevalence and associated risk factor of PTB among presumptive patients in Hiwotfana specialized university hospital during the study period

**Budget:-**Total cost of this study is 4503

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# OPERATIONAL DEFINITION

**New case:** - patient who has never been treated for tuberculosis, who has taken anti tuberculosis less than one month..

**PTB presumptive**: - refers to a patient who presents with symptoms or signs suggestive of TB.

**Relapse case: -** a patient previously declared cured but with a new episode of Symptom of disease and bacteriological positive (sputum smear or culture) of TB.

**sputumSmear negative**: - Absence of AFB in at least two sputum smear examinations

**Sputum smear positive**: - the presence of at least one acid fast bacillus (AFB+) in at least one sputum sample

**Contacthistory** :-Prolonged and indoor exposure to TB case i.e. pulmonary Tuberculosis (PTB)

# ABBREVIATION AND ACRONYM

**AFS** -Acid fast stain

**AFB** - Acid Fast Bacilli

**AIDS -** Acquired Immune Deficiency syndrome

**DOTS** - Direct Observation treatment short course

**HIV** - Human Immune deficiency Virus

**MOH** - Ministry of Health

**MTB** - *Mycobaterium tuberculosis*

**MTBC**- *Mycobaterium tuberculosis* complex

**MDRTB** - Multi-Drug Resistance Tuberculosis

**PTB**- Pulmonary tuberculosis

**TB** - tuberculosis

**WHO** - World Health Organization

**ZnS**- Ziehl Nielsen stain

# CHAPTER –ONE

# 1. INTRODUCTION

Tuberculosis is a bacterial disease caused by Mycobacterium tuberculosis complex which includes most of the time M. tuberculosis and occasionally by M. bovis, M, africanum and M. canetti.(1)These organisms are also known as tubercle bacilli or Acid- fast- bacilli. When examining sputum containing tubercle bacilli processed by Ziehl-Neelsen stain under the microscope, the bacilli stained red. This is because they retain the primary dye even after washing with acid alcohol due to the waxy component of their cell wall.(2) Tuberculosis generally affects the [lungs](https://en.wikipedia.org/wiki/Lung), but can also affect other parts of the body. Most infections do not have symptoms; in which case it is known as [latent tuberculosis](https://en.wikipedia.org/wiki/Latent_tuberculosis). About 10% of latent infections progress to active disease which, if left untreated, kills about half of those infected. The classic symptoms of active TB are a chronic [cough](https://en.wikipedia.org/wiki/Cough) with [blood-containing](https://en.wikipedia.org/wiki/Hemoptysis) [sputum](https://en.wikipedia.org/wiki/Sputum), [fever](https://en.wikipedia.org/wiki/Fever), [night sweats](https://en.wikipedia.org/wiki/Night_sweats), and [weight loss](https://en.wikipedia.org/wiki/Weight_loss).(1)

Tuberculosis is [spread through the air](https://en.wikipedia.org/wiki/Airborne_disease) when people who have active TB in their lungs cough, spit, speak, or sneeze.(1,2)When people with active pulmonary TB cough, sneeze, speak, sing, or spit, they expel infectious [aerosol](https://en.wikipedia.org/wiki/Aerosol) droplets 0.5 to 5.0 [µm](https://en.wikipedia.org/wiki/%CE%9Cm) in diameter. A single sneeze can release up to 40,000 droplets.(3) Each one of these droplets may transmit the disease, since the infectious dose of tuberculosis is very small (the inhalation of fewer than 10 bacteria may cause an infection).(4)

People with latent TB do not spread the disease. Active infection occurs more often in people with [HIV/AIDS](https://en.wikipedia.org/wiki/HIV/AIDS) and in those who [smoke](https://en.wikipedia.org/wiki/Tobacco_smoking).(1)

Those at high risk include household, workplace, and social contacts of people with active TB.(5) Treatment requires the use of multiple [antibiotics](https://en.wikipedia.org/wiki/Antibiotic) over a long period of time.(1)[Antibiotic resistance](https://en.wikipedia.org/wiki/Antibiotic_resistance) is a growing problem with increasing rates of [multiple drug-resistant tuberculosis](https://en.wikipedia.org/wiki/Multi-drug-resistant_tuberculosis) (MDR-TB).(1)

## 1.2. Statement of the Problem

Tuberculosis (TB) is a major cause of morbidity and mortality worldwide. According to World Health Organization(WHO) 2011 report, 8.8 million new cases of TB were registered around the world. Majority (35%and 30% were reported from south East Asia and Africa respectively). Additionally, 1.1 million deaths were reported, majority was from Asia (59%) and Africa (26%). (6)

One-third of the world's population is thought to be infected with TB.(1) In 2014, there were 9.6 million cases of active TB which resulted in 1.5 million deaths. More than 95% of deaths occurred in [developing countries](https://en.wikipedia.org/wiki/Developing_countries). The number of new cases each year has decreased since 2000.(1) About 80% of people in many Asian and African countries test positive while 5–10% of people in the United States population tests positive by the tuberculin test.(7)

There were an estimated 9.0 million incident cases of TB and 1.5 million people died from the disease (1.1 million deaths among people who were HIV-negative and 360 000 people who were HIV-positive). Among these deaths there were an estimated 210 000 from MDR-TB, a relatively high total compared with 480 000 incident cases of MDR-TB. An estimated 13% of new TB cases were HIV-positive in 2013. (8).

TB is one of the major causes of morbidity and mortality in the horn of Africa, and Ethiopia ranks 7th with highest TB burden in the world .(9) According to the Ethiopian Federal Ministry of Health (MOH) data, tuberculosis is the 3rd cause of hospital admission and the 2nd cause of death after malaria (10). According to WHO report of 2011, the incidence and prevalence of all forms of TB were 261/100,000, 394/100,000 population per year, respectively (11)

Although TB has the potential to affect all people regardless of sex and age, those in the age range 15 – 54 years and with poor socio-economic status were found to be at higher risk (12, 13) Various factors including poverty, malnutrition, overcrowded living condition, multidrug resistant (MDR) TB and HIV/AIDS have been known to increase the risk of developing the disease and for the continued threat of TB in the world (10, 14)

Early diagnosis of the disease and prompt treatment is essential for an effective and efficient TB control program. Delay in diagnosis may worsen the disease, increase the risk of death, and increase the chance to transmit the agent to community. Studies in Africa shows that patients and health care delays are the major problem in the control of TB. (15)

So far there was no latest report on the prevalence and associated risk factor of pulmonary tuberculosis among the presumptive patients in Hiwot Fana specialized university hospital. Therefore, the aim of this study is to determine the prevalence and associated risk factor of PTB among presumptive patients in Hiwot Fana Specialized University Hospital.

1.3. Significance of the Study

As it is clearly described in the statement of problem and literature review, reports on the prevalence of PTB is high in developing countries like Ethiopia. This study can provide information about the prevalence of PTB infection in Hiwot Fana specialized university hospital. Also it may provide base line information on the prevalence of PTB to the concerned governmental and service institution and describe socio-demographic characteristic of the infection. Furthermore this study initiates other researchers on the topic to determine the magnitude of the problem and implement solution to reduce.

# CHAPTER –TWO

# LITERATURE REVIEW

Tuberculosis continues to be an important health problem worldwide in both morbidity and mortality. PTB is the commonest form of disease in about 80% of patients, extra-pulmonary which affects organs other than lungs such as, nerves system, lymph nodes, and joints etc. account about 20% of all TB patients. (16)

A study conducted in central India in 2009, the prevalence of PTB shows that of 2341 individual eligible for screening 297(7.9%) were positive for PTB. The overall prevalence of culture and smear positive PTB was 387(95% CI: 273-502) per 100,000 population. The prevalence of PTB increase with age and significantly higher among males: 444/100,000 (95% CI: 415-693) as compared to female: 233/100,000(95% CI: 101-346) P<0.001. (17)

According to the study conducted about PTB among women with cough in Tanzania, Dar Es Salaam in 2009 shows that out of 616 TB suspects, 14(2.3%) were smear positive .(18)

A study conducted in 2010 in pokhara, kaski, and Nepal showed that of the 62 HIV infected drug user PTB was diagnosed in 3(4.8%) of participant. All of them were male in productive age group. Cough was the major clinical symptoms (54.8%) in the study participant. (19).

Of 16695 adult participants in 2006 in rural district of Ethiopia, 436(2.6%) were symptomatic for TB and submitted sputum sample for AFB and 13(3%) were positive for AFB. There were 34 smear positive cases identified through the existing health care delivery on ant-TB medication at the time of survey. The ratio of smear positive on treatment to those newly detected by the survey was 2:1. (20)

A retrospective study conducted about the prevalence of PTB in Agaro Teaching Health Center from 2005/6-2009/10 for five years shows that prevalence of smear positive PTB was 10.9% on the other hand the percentage of smear positive PTB shows gradual decrease from 19.8% in 2005/6 to 5.8% in 2009/10. (21)

A hospital based cross sectional study conducted at Nigist Eleni Mohammed Memorial Hospital, South Ethiopia from May to June 2013 show that of the 186 suspected pulmonary tuberculosis participants, smear positive acid fast bacilli were detected in 18 (9.7%) and 20 (10.8%) by direct and bleach concentrated Zeihl-Neelson staining technique respectively. Compared to age group of 15 – 30 there was lower risk of pulmonary tuberculosis for those who were in age group of ≥45 years, [AOR = 0.04, 95% CI: (0.01, 0.36)]. Being male [AOR = 6.56, 95% CI: (1.84, 23.34)], cough duration ≥ 2weeks [AOR = 10.20, 95% CI: (1.16, 89.48)] and contact with known TB patient at home, [AOR =5.81 (1.57, 22.31)] were found to have strong association with smear positive pulmonary tuberculosis. (22)

The study conducted in Seka health center, Jimma, Oromia region, Ethiopia to determine the prevalence of smear positive PTB in 2010 shows that of 165 requested for AFB, 18(10.62%) were smear positive. According to this study, habit of drinking raw milk, contact history and occupational status had significantly associated with prevalence of PTB. (23)

Another study on smear positive PTB conducted in Metehara sugar factory hospital in 2011 showed that prevalence of smear positive pulmonary tuberculosis was 14.2%. Statistical significant association was observed between age, family size, history of contact with chronic coughers (TB infected patients), smoking habit and alcoholism with pulmonary tuberculosis (P< 0.05). (24)

# CHAPTER- THREE

# 3. OBJECTIVE

## 3.1. General Objective

* To determine the prevalence and associated risk factor of PTB among presumptive patients in Hiwot Fana Specialized University Hospital during the study Period.

## 3.2. Specific Objective

* + To determine the magnitude of smear positive PTB
  + To determine the socio-demographic characteristic of PTB infected Patients.
  + To determine the possible risk factor of PTB

# 

# CHAPTER- FOUR

# METHODS AND MATERIALS

**4.1 Study Area and Study Period**

**4.1.1 Study Area**

This study will be conducted in HFSUH, in Harar town which is 526km away from Addis Ababa in Eastern part of Ethiopia. The town has an altitude of about 1835m above sea level, with temperature ranges from 180c to 270c and rain fall ranges between 410mm to 820mm.According to data obtained from Harari health region bureau, the population number of Harar town is 219,000.The region has an estimated density of 595.9 people per square kilometer. The region has six Hospitals, eight health centers, and twenty health posts. According to the central statistics authority of Ethiopia 2007, Harari regional state has population of 183,415 of these 92,316 were male and 91,099 were female. There were 50,000 reproductive age group and 800 under five children.

Hiwot fana Specialized University Hospital was established in 1941.It is referral hospital for the entire eastern part of the Ethiopia, including the Eastern Oromia region, Dire Dawa city, the Somali region, and the Harari regional state. Currently it is the teaching hospital of Haramaya University’s College of Health and Medical Sciences.

**4.1.2Study period**

The study will be conducted from Feb 6, 2017-March 6,2017

4.2 Study Design

A cross- sectional study design will be conducted on the PTB presumptive patients visiting Hiwot fana Specialized University Hospital laboratory during the study period.

## 4.3 Population

### 4.3.1 Source Population

The source population for this study will be all individual who visit Hiwot Fana Specialized University Hospital during the study period.

4.3.2 Study Population

All clinically Pulmonary Tuberculosis presumptive case that will be send to Hiwotfana Specialized University Hospital

4.3.3Study**subjects**

All patients who will be requested for AFB examination at Hiwot fana Specialized University Hospital laboratory during the study period

**4.4 INCLUTION AND EXCIUTION CRATERIA**

**4.4.1 INCLUTION CRATERIA**

All presumptive patients who are volunteer to participate in the study will be included.

**4.4.2 EXCLUTION CRATERIA**

Those patients who are not volunteer to participate in the study will be excluded.

Those patients who started treatment and follow up will be excluded.

## 4.5 Sampling Technique and Sample Size

## 4.5.1 Sampling Technique

Convenient sampling technique will be used to include all suspected of PTB who will be sent to Hiwot Fana Specialized University Hospital laboratory during the study period.

## 4.5.2 Sample Size Determination

Sample size for this study will calculated by using the formula

n= (Z∞/2)2 p (1-p)

d2

p = Prevalence (10.9) from study conduted in Agaro Teaching Health Center.

n=Sample Size

Z∞/2=95% confidence interval

d= degree of margin errors

n= (1.96)2 0.109(1-0.109) = 149.2 =150

(0.05)2

By considering 10% non respondent the sample size will be n=165

## 4.6 Study Variable

### **4.6.1 Dependent variable**

Prevalence of PTB

### **4.6.2 Independent variable**

* Family income
* Smoking cigarette
* Drinking alcohol
* Consumption of raw milk
* Housing condition
* Age
* Sex
* Contact history with TB patients
* Occupational status
* Marital status
* Family size
* Residence
* Religion
* Ethnicity

## **4.7 Data collection and sample processing**

### **4.7.1 Data collection**

Before the actual data collection, pretest will be carried outon9 patients who are requested for AFB in Jogul hospital to evaluate and revise questionnaire clarity, order of questionnaire, skip pattern and for its consistency. Information concerning the socio-demographic and associated risk factors will be collected by using structured questionnaires.

### **4.7.2 sample processing**

Sputum sample (spot morning spot) will be collected according to the National tuberculosis and leprosy control program (NTLCP) manual standard procedures on collection of Sputum sample for AFB with appropriate instruction and the quality of sample will be checked before examination. According to national TB and leprosy control program (NTLCP) manual and standard procedure smear will be prepared, stained and examined microscopically to look for red rod shape AFB with blue background.

## 4.8 Data processing And Analysis

Data will be checked for any incompleteness or inconsistency and will be processed and analyzed by using computer software program (SPSS). Descriptive statics will be used to assess the association between the associated risk factor and pulmonary tuberculosis(PTB).

A 95% confidence interval will be used and odds ratio and p-value will be used to assess the association between independent variable and dependent variable p-value < 0.05 will be considered as statically significant association.

## 4.9 Quality control

The patients will be instructed how to collect sputum and the sample will be prepared and examined .Then the results will be registered on the laboratory result recording format before given to the patients. To ensure the reliability and validity of the study result, the following quality assurance will be implemented.

**Pre-analytical phase**

* Patients will be instructed how to collect spot-morning –spot sputum according to national TB and leprosy control program (NTLCP) manual and standard procedure on collection of Sputum sample
* Reagents and equipment will be checked for reliability and reproducibility of the test.

**Analytical**

* SOP will be implemented throughout the study time according to national TB and leprosy control program (NTLCP) manual and standard procedure.

**Post –analytical**

* The laboratory result will be kept properly for rechecking.

## 4.10 Ethical Consideration

A letter of support will be obtained from Haramaya University, College of Health and Medical Sciences department of medical laboratory science. Permission will be obtained from HFSUH. The participant will be informed about the purpose of the study and the importance of their participation in the study. Only the volunteer individuals will be involved and study participant will have the right to withdraw from the study at any time. Those participants who will be positive for pulmonary tuberculosis will be treated by communicating the concerned body of the hospital. Results will be kept confidential.

## 4.11 Plan for Dissemination of the finding

The result of this research will be submitted to, Haramaya University, college of health and medical science, department of medical laboratory science. In addition to this the information will be provided to HFSUH and other governmental organization involved in the prevention and control of Tuberculosis.

**4.12 Limitation of the Study**

The study undertaken in short period so that it may not show us the exact extent of the Problem.

**CHAPTER- Five**

**WORK PLAN**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Activities | Responsible person | Dec | Dec | Jan | Jan | Jan | Feb | Feb | Feb6-march4 |
| Topic selection |  |  |  |  |  |  |  |  |  |
| 1st draft submission |  |  |  |  |  |  |  |  |  |
| 2nd draft submission |  |  |  |  |  |  |  |  |  |
| 3rd draft submission |  |  |  |  |  |  |  |  |  |
| Submission to examiner |  |  |  |  |  |  |  |  |  |
| Proposal deffence |  |  |  |  |  |  |  |  |  |
| Final proposal submission |  |  |  |  |  |  |  |  |  |
| Data collection |  |  |  |  |  |  |  |  |  |

**CHAPTER- SIX**

## Budget Break Down

**1.Stationary items, amount needed and their respective price**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Items** | **Unit** | **Quantity** | **Unit price (Birr)** | **Total price** |
| Pen | Numbers | 5 | 5 birr/each | 25.00 |
| Pencil | Number | 5 | 2 birr/each | 10.00 |
| Duplication paper | Pack | 6 | 105 birr/each | 630.00 |
| Eraser | Number | 2 | 5 birr/each | 10.00 |
| Ruler | Number | 1 | 10 birr/each | 10.00 |
| Sharper | Number | 2 | 2 birr/each | 4.00 |

**2. Laboratory reagent and equipments with their price and amount needed**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Items | Unit | Quantity | Unit price (Birr) | Total price (Birr) |
| Carbol fuchsine | Liter | 3 | 300 birr | 900 birr |
| Acid alcohol | Litter | 1 | 300 birr | 300 birr |
| Metylene blue | Liter | 3 | 300 birr | 900 birr |
| Sputum cup | Number | 450 | 1 birr | 450.00 |
| Staining rack | Number | 1 | 60 birr | 60 birr |
| Slides | Pack | 8 | 50 birr | 400 birr |
| Cotton | Grain | 1 | 40 brirr | 40 birr |
| Forceps | Number | 2 | 30 birr | 60 birr |
| Match | Number | 4 | 1 birr | 4 birr |
| Contingency |  |  |  | 700 |
| Total |  |  |  | 4505 |

**CHAPTER- SEVEN**

**DUMMY TABLE**

**Table 1**:-Distribution of smear positive PTB by age, sex and recidence among presumptive Patients visiting Hiwot fana Specialized University Hospital from Feb 6/2017- March 4/2017(n=165)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristics** | **AFB examination** | | | | **Total** | | **Association** |
| **Positive** | | **Negative** | |
| No | % | No | % | No | % |
| **Sex** |  |  |  |  |  |  |  |
| Male |  |  |  |  |  |  |  |
| Female |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |
| **Age in year** |  |  |  |  |  |  |  |
| <15 |  |  |  |  |  |  |
| 15-30 |  |  |  |  |  |  |
| 31-45 |  |  |  |  |  |  |
| >45 |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |
| **Recidence** |  |  |  |  |  |  |  |
| Rural |  |  |  |  |  |  |  |
| Urban |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |

**Table 2**:-Distribution of smear positive PTB by ethnicity and religion among presumptive

Patients visiting Hiwot fana Specialized University Hospital Feb 6/2017- March 4/2017(n=165)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristics** | **AFB examination** | | | | **Total** | | **Association** |
| **Positive** | | **Negative** | |
| No | % | No | % | No | % |
| **Ethnicity** |  |  |  |  |  |  |  |
| Oromo |  |  |  |  |  |  |
| Amhara |  |  |  |  |  |  |
| Guraghe |  |  |  |  |  |  |  |
| Harari |  |  |  |  |  |  |
| Tigrai |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |
| **Religion** |  |  |  |  |  |  |
| Orthodox |  |  |  |  |  |  |
| Catholic |  |  |  |  |  |  |
| Protestant |  |  |  |  |  |  |
| Muslim |  |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |

**Table 3:-** Distribution of smear positive PTB by Marital status and educational status among presumptive patients visiting Hiwot fana Specialized University Hospital Feb 6/2017- March 4/2017(n=165)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristics** | **AFB examination** | | | | **Total** | | **Association** |
| **Positive** | | **Negative** | |
| No | % | No | % | No | % |
| **Marital status** |  |  |  |  |  |  |  |
| Single |  |  |  |  |  |  |  |
| Married |  |  |  |  |  |  |
| Divorced |  |  |  |  |  |  |
| Widowed |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |
| Recidence |  |  |  |  |  |  |  |
| **Educational Status** |  |  |  |  |  |  |  |
| Illiterate |  |  |  |  |  |  |  |
| Read and write |  |  |  |  |  |  |  |
| Grade 1-8 |  |  |  |  |  |  |  |
| Grade 9-12 |  |  |  |  |  |  |  |
| Higher education |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |

**Table 4**:- Distribution of smear positive PTB by contact history No of rooms, No of windows among presumptive patients visiting Hiwot fana Specialized University Hospital Feb 6/2017- March 4/2017(n=165)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristics** | **AFB examination** | | | | **Total** | | **Association** |
| **Positive** | | **Negative** | |
| No | % | No | % | No | % |
| **Contact history** |  |  |  |  |  |  |  |
| Yes |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |
| No of Rooms |  |  |  |  |  |  |  |
| 1 |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |
| No of window |  |  |  |  |  |  |  |
| 1 |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |

**Table 5:-** distribution of smear positive PTB by family size and family income per month among presumptive patients visiting Hiwot fana Specialized University Hospital Feb 6/2017- March 4/2017(n=165)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristics** | **AFB examination** | | | | **Total** | | **Association** |
| **Positive** | | **Negative** | |
| No | % | No | % | No | % |
| **Family size** |  |  |  |  |  |  |  |
| 1-5 |  |  |  |  |  |  |  |
| 6-10 |  |  |  |  |  |  |
| 10+ |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |
| Family income per month |  |  |  |  |  |  |  |
| <500 |  |  |  |  |  |  |
| 500-1000 |  |  |  |  |  |  |
| 1001-1500 |  |  |  |  |  |  |
| 1500+ |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |

**Table 6:-** Distribution of smear positive PTB by cigarette smoking habit, drinking alcohol behavior and drinking of raw milk behavior among presumptive patients visiting Hiwot fana Specialized University Hospital Feb 6/2017- March 4/2017(n=165)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristics** | **AFB examination** | | | | **Total** | | **Association** |
| **Positive** | | **Negative** | |
| No | % | No | % | No | % |
| **Habit of smoking cigarette** |  |  |  |  |  |  |  |
| Yes |  |  |  |  |  |  |  |
| No |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |
| **Habit of drink alcohol** |  |  |  |  |  |  |  |
| Yes |  |  |  |  |  |  |
| No |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |
| **Habit of drinking raw milk** |  |  |  |  |  |  |  |
| Yes |  |  |  |  |  |  |
| No |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |

**Table7**:- Distribution of smear positive PTB by occupational status among presumptive paints visiting Hiwot fana Specialized University Hospital Feb 6/2017- March 4/2017(n=165)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristics** | **AFB examination** | | | | **Total** | | **Association** |
| **Positive** | | **Negative** | |
| No | % | No | % | No | % |
| **Occupational**  **Status** |  |  |  |  |  |  |  |
| Farmer |  |  |  |  |  |  |  |
| Government employer |  |  |  |  |  |  |
| Student |  |  |  |  |  |  |
| House wife |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |

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# [ANNEX –I](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

# [QUESTIONNAIRE](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

**Haramaya University College of Health and Medical Sciences Department of Medical Laboratory Science**

We are medical laboratory science students at Haramaya University. Now we are going to conduct a research entitled the prevalence and associated of PTB among presumptive patients in Hiwotfana Specialized University Hospital. The objective of the study is to determine the prevalence and associated of PTB among presumptive patients in Hiwotfana Specialized University Hospital

If you are volunteer to participate on this study, you will fill the questionnaire and then you will bring us sputum sample. The sputum sample and the data that you give do not affect you. All the data kept confidentially. Since participation is volunteer bases, you have the right to participate or not to participate, even to withdraw from participation under any condition. But your participation on the study will benefit you i.e. those positives get treated later on.

Therefore, are you volunteer to respond these questions?

Yes No Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part I Socio Demographic Data**

[ID- No \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

1. Age \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Sex a. Male b.Female

3. Residence

a. Urbanb.Rural

4. Religion a. Orthodox b. Muslim c. Protestant d. Catholic e. Other(specify)

5. Ethnicity a. Oromo b. Harari c. Amhara d. Gurage e. Tigre [f. Other (specify)](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030) \_\_\_\_\_\_\_\_\_\_\_\_\_

6. [Marital status](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

a. [Single b. married c. Divorced d. widowed](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030) e.separated

[7.Educational status](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

[a.Do not read and writeb.Read and write](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)  c. [1-8 graded. 9-12 grade](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

[E, Higher education](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

[8.Occupational status](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

[a.Farmerb. Student c.House wife](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030) d. [Government employee](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030) e.[driverf. Other (specify)](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030) \_\_\_\_\_\_\_\_\_\_\_\_\_

[9.Family income per month\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

10. [Life style](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

* 1. [Family size](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10.2 [No of room](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. [No of window](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part II**

**Associated factors for PTB**

[11.](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030) Do you have  [contact history with people who have PTB](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

a. [Yes](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)  b. No

12.[If your answer is Yes for question number 11 How long? a. for a day b. a week c. a month d. above](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

[13. Do you have the habit to drink alcohol? a. Yes b. No](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

14.[If your answer is Yes for question number 13 how often? a. every day b. per week](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)  c.[per month](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

15. Do you have the habit to  [smoke cigarette? a .Yes b. No](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

16.[If your answer is Yes for question number 15 how often? a. Every day b. per week c. per month](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

17Have you [to drink raw milk? a. Yes b. No](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

18.[If your answer is Yes for question number 17 how often? a.Every day b. per week c. per month](mailto:mailt:mezgebulegese@gmail.com?subject=page%2030)

# ANNEX –II

# TEST PROCEDURE

1. Smear the appropriate sputum on mirosopic slide.
2. Allow the smear to air dry.
3. Air-dried sputum smears fixed with heat.
4. Cover the smear with carbol fuchsine stain and heat the stain until vapor just begins to rise. Do not over heat.
5. Allow the heated stain to remain on the slide for 5 minutes.
6. Wash off the stain with clean water.
7. Cover the smear with 3% acid alcohol for 2-3 minutes or until the smear is sufficiently decolorized. i.e. pale pink.
8. Wash well with clean water.
9. Cover the smear with methylene blue for 1-2 minutes
10. Wash off the stain with clean water.
11. Wipe off the back of the slide with tissue paper and allow air dry.
12. Stained smear examined microscopically (using 100× objective) for acid-fast bacilli.

# ANNEX –III

# Materials and Reagents

1. Microscope
2. Immersion oil
3. Sputum cups
4. Glove
5. Staining rack
6. Forceps
7. Pasteur pipette
8. Distillate
9. Wire loop
10. Slides
11. Slide box
12. Cotton
13. Sprit lamp
14. AFB staining reagents

* Carbol fuchsine
* Acid Alcohol
* Methylene Blue

# ANNEX –IV

Laboratory Examination Request Format

Card No ------------------------------------- Date----------------

Pt. Name ------------------------------------ Age ----------------- sex -----------

Reason for examination or request --------------------------------------------

Signature of physicians Name -----------------------

Sign ------------------------

Lab serial No; ----------------------------------

|  |  |  |  |
| --- | --- | --- | --- |
| **Date specified** | **Appearance** | **Positive** | **Negative** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Visual Appearance of Sputum May be

* Bloody
* Purulent
* Muco-purulent
* Saliva

Signature of lab personnel Name -------------------

Sign -------- Date --------------------