

**A STUDY TO DETERMINE FACTORS
CONTRIBUTING TO THE SPREAD
OF TUBERCULOSIS IN KABWE
URBAN**

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OF

By

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OF
OF
OF

THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
POST BASIC NURSING DEPARTMENT

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1996

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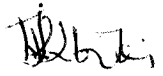
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LIST OF ABBREVIATIONS

T.B.	Tuberculosis
H.I.V.	Human Immune Deficiency Virus
N.T.L.P.	The National Tuberculosis and Leprosy Control Programme
B.C.G.	Bacillus Calmette Guerin
U.T.H.	University Teaching Hospital
A.I.D.S.	Acquired Immune Deficiency Syndrome
U.N.Z.A.	University of Zambia
D.N.A.	Deoxyribonucleic acid

DECLARATION

I JENNY KAMUHA KABUBI... hereby declare that the work presented in this study for Bachelor of Science Degree in Nursing has not been presented either wholly or in part for another Degree and is not being currently submitted for any other Degree.

Signed by: .....
CANDIDATE

Approved by .....
SUPERVISING LECTURER

STATEMENT

I hereby certify that this project is entirely the result of my own independent study. The various sources to which I am indebted are clearly indicated in the text and in the references.

SIGNED.....
CANDIDATE

DEDICATION

This study is dedicated to my parents Mr. and Mrs Kabubi, my son Muzala Kafwanda; my niece Inonge Kabubi. My sisters Muyunda and Kalumbu, my brothers Katungu, Kandy, Kittyson and Kabubi.

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ABSTRACT

OBJECTIVE:

To establish the factors that contribute to the spread of Tuberculosis in Kabwe Urban.

DESIGN:

A descriptive and quantitative research design was used. A structural interview schedule was used to collect data from respondents.

SETTING:

The study was conducted at Kabwe General Hospital, Chest Clinic.

SUBJECTS:

Fifty (50) patients between the ages of 15 years and 45 years consented to the study and filled in questionnaires.

RESULTS:

90% patients lack knowledge on Tuberculosis due to lack of information, education and communication by health workers, poor hygienic practices like spitting out sputum anywhere also contribute to the spread of Tuberculosis. Housing patterns are poor, leading to poor ventilation and overcrowding. In 90% cases, contact tracing has not been done. There is a poor referral system between health centers and the hospital.

CONCLUSION

Tuberculosis still remains a serious Public Health threat. It is highly infectious but can be prevented and treated. Health workers must intensify information, education and communication on Tuberculosis in all health facilities. Hospitals should reinforce policies on contact tracing of TB patients. If the above steps are undertaken the spread of Tuberculosis will greatly be controlled.

CHAPTER 1

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

The reappearance of Tuberculosis on the world scene as a serious Public Health threat points up the fallacy of the widely held assumption that medial science had conquered the communicable diseases that were once leading causes of morbidity and mortality. "This resurgence of Tuberculosis is a warning of the consequences of neglecting Public Health agencies and ignoring the socio-economic problems that underlie it and other communicable diseases."¹

In the United States of America, the decades preceding the 1980s were characterized by a decline in the incidence of Tuberculosis (TB). More recently, the trend has undergone a significant reversal with case rates increasing by 3% to 6% annually. In 1990, more than 25,700 cases were reported to the Centers for Disease Control.²

In Sub-Saharan Africa, the epidemic of Human Immune deficiency Virus (HIV) associated Tuberculosis is having a severe impact on Tuberculosis Control and it is expected to spread.³

In Sub-Saharan Africa and South East Asia, it is approximated that half the adult population aged between 20 to 40 years are infected with the mycobacterium tuberculosis.⁴

In Zambia, TB has rapidly become a major health problem in the last decade. Despite the fact that the TB Control programme has been in existence for a long time (since 1964) and that short course chemotherapy has been generally available from about 1980; it has remained difficult to accurately and systematically determine outcomes in our health institutions. TB is now one of the leading causes of morbidity and mortality accounting for some 13% of all adult hospital deaths recently, and being one of the top ten leading causes of hospital admissions.⁵

The National Tuberculosis Control Programm (NTP) was established in 1964 in Zambia. In 1980, Leprosy and TB control activities were integrated in the National Tuberculosis and Leprosy Control Programme (NTLP). The objectives are:-

- a. To reduce the incidence and prevalence of TB in Zambia.
- b. To reduce morbidity and mortality from TB.
- c. To reduce physical and psycho-social suffering of the population from TB.

The Government of Netherlands has been supporting the NTLP since 1989 by supplying anti-Tuberculosis drugs under the Import supply programme of their Government as requested by the Zambian Ministry of Health on a yearly basis.

Functions of the NTLP, include organising diagnostic and curative services for TB patients. In the early 1980, TB patients received the two months fully supervised initial phase of treatment in a general hospital or sanatorium. The next six

months of chemotherapy was completed on ambulatory basis. Eventually the ambulatory treatment was extended to the initial phases of treatment due to the rise in the number of TB cases leading to a high demand for in patient facilities.⁴

Despite the establishment of the NTLP in Zambia, TB continues to be a major threat to Public health with cases increasing from about 8,000 in 1985 to over 36,000 in 1994, tripling the case detection rate from about 100 to over 380 per 100,000 population.⁵

It is estimated that there is a 15 to 20% annual increase in new TB cases in Zambia.⁶

A study done by Griffiths et al in South Africa indicates that control measures in TB failed because of neglect of socio-economic factors. The blame was also on inadequate chemotherapy, difficulties in tracing defaulters and discharges from hospitals due to problems of communication and inadequate addresses.⁷

This study seeks to find the contributing factors to the spread in TB cases in Kabwe Urban.

1.2 STATEMENT OF THE PROBLEM

The number of Tuberculosis (TB) cases which are registered by the National TB and Leprosy Control Programme (NTLP) has more than tripled from about 8 500 in 1985 to over 36 000 in 1994. Of the cases registered in recent years, about 40% are smear-positive

pulmonary TB patients, but considerable differences exist between the provinces ranging from 20% to 50%.⁵

Tuberculosis has in fact become one of the leading causes of morbidity and mortality, accounting for some 13% of all adult hospital admissions. This is so inspite of the anti TB therapy available at all diagnostic centers in Zambia.

In the Central Province of Zambia, there has been an increase in cases of TB from 1371 cases in 1990 to 2757 cases in 1995. Kabwe Urban, which is in Central Province has a population of 195 040 (1994). There has been a recorded increase of TB cases of 2384 in 1994 from 1095 cases in 1992 at the Chest Clinic, Kabwe General Hospital.⁸

Kabwe town had been a mining industry for a long time. The mine had provided the people of Kabwe with a livelihood through employment as miners. Unfortunately, Kabwe Mine was closed in December, 1994 and many miners lost employment because the mine was not making any profits. Despite the fact that some miners have been able to purchase the houses they had been occupying, most of them have gone to live in the shanty compounds of kabwe. The ex-miners have had to rent out their houses so that they can have some source of income to buy food and other essentials.

The closure of the mine in Kabwe has brought a lot of hardships to a lot of people. Unemployment levels have risen drastically. Because most people are not in employment, they are starving

because they cannot afford adequate meals. More and more people are settling in the compounds because they do not want to go and settle in villages, falsely believing they are better off in town, even if it is in a shanty compound. These shanty compounds are characterised by poor house infrastructures, lack of proper sanitation and water, overcrowding poor hygienic practices, exposure to polluted air, lack of social services as well as extreme poverty resulting from unemployment.

The above situation creates a conducive environment for TB to develop and spread. Although TB is widespread, its greatest toll is in regions with low standards of living among the under privileged in the population.

The social and economic burdens that TB creates are particularly devastating because the impact and effects are felt more during the reproductive years of life.⁹

The major factors that may be contributing to the increase in TB in Kabwe Urban are:

i. Lack of Knowledge on TB

Because clients and patients lack adequate knowledge on TB, its spread and treatment, they fail to seek early medical attention and treatment when they fall ill. Due to lack of knowledge on TB some patients may even prefer traditional medicine when sick, believing that traditional healers know better than medical doctors in this field.

According to Crofton et al. (1992) "every patient with TB has to be educated on the causes of the disease, the treatment, prevention and control."¹⁰ Patients' families are given the same information during contract tracing and follow up care. Local leaders and traditional healers can be educated to send patients suspected of TB to health centres for diagnosis and treatment. Traditional healers should be told that they would not cure the disease thereby giving themselves a bad reputation to community members.

ii. **Poor Housing and Overcrowding**

With more people settling in the shanty compounds of Kabwe where there is no proper housing structure and where the houses are overcrowded, there is very poor ventilation. One case of TB in this case would spread to the entire household and to the community as a whole.

Associated to poor housing and overcrowding is the poor water supply and sanitation in the shanty compounds. This leads to poor hygienic practices which facilitate spread of communicable diseases.

iii. **Poverty**

Unemployment has led families to fail to obtain adequate food. The drought has led to many families being starved. Because of lack of adequate food, the body's defence mechanism is greatly lowered resulting in increased susceptibility to infections. As a result, TB has found

easy access to spread since the body cannot fight against it. Malnutrition has increased tremendously.

iv. **Lack of Contact Tracing**

There is no proper system in place to follow up families where TB patients come from in order to screen the other family members and start treatment if necessary. Perhaps there is a shortage of staff such that it is not possible to follow up families of TB patients. It could also be that the hospital staff are just indifferent and are not doing their work as required to.

Defaulters from chemotherapy need to be traced and motivated to continue with regular treatment. This is known as defaulter tracing.

v. **Non Compliance with drug therapy**

Some patients fail to comply with drug therapy because of the length of time they have to be on treatment, 8 months at least.

The acquisition of resistance during the course of treatment is associated with inadequate cooperation in taking anti TB drugs.¹¹

Control of TB largely depends on curing smear positive TB cases. Patients can be cured provided that they have a correct drug combination, taking the current dose

regularly. Failure to follow treatment means the patient cannot be cured and may become infectious again or even worse, never become non infectious.¹²

vi. **Poor referral system**

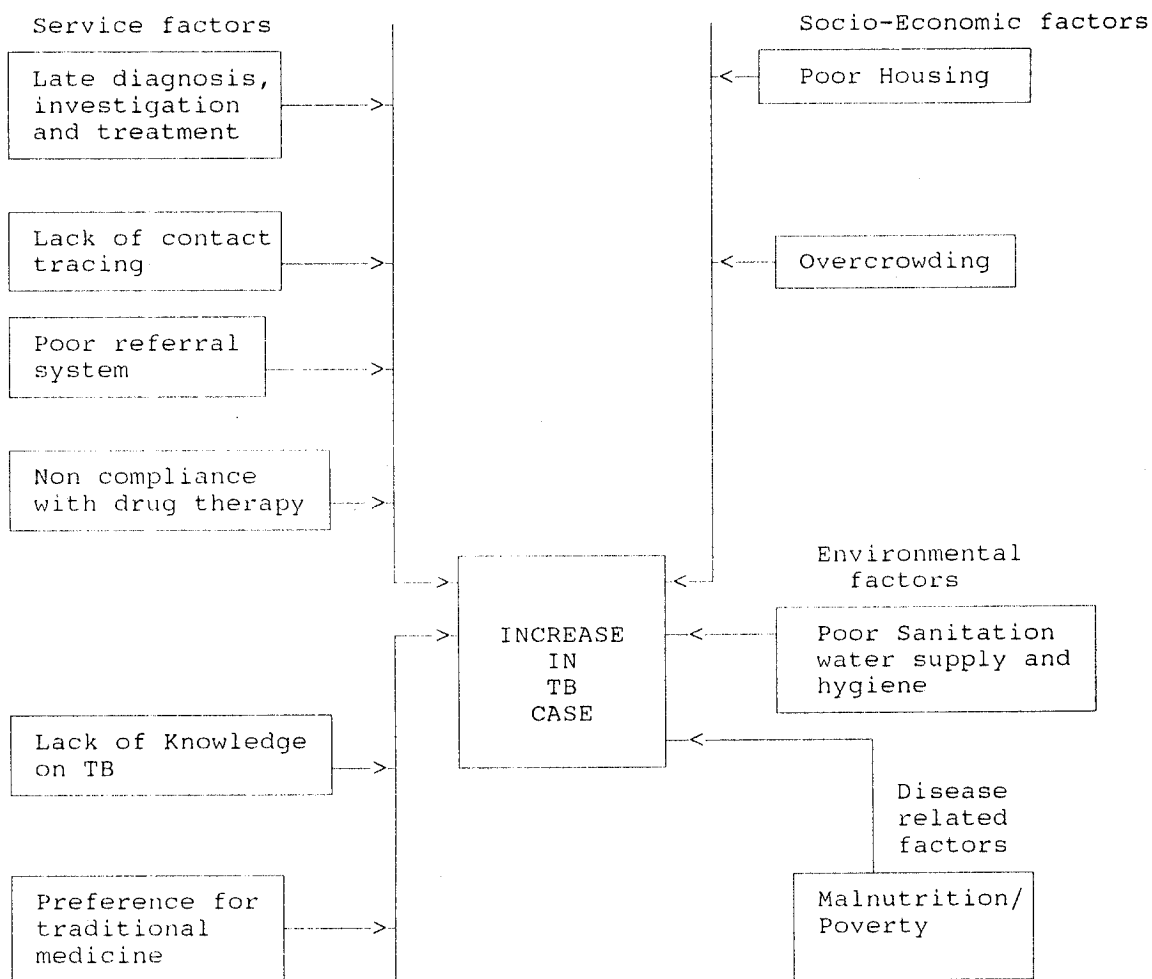
Kabwe Urban has six (6) notification centers. These refer any suspected TB cases to the diagnostic centers, Kabwe General Hospital and Bwacha Clinic. An effective referral system in this case could improve case finding in an effort to control the spread of TB.

According to Malambo (1994), "a poor referral system does not only increase the defaulter rate but can lead to delay in patients diagnosis and delay in starting anti-TB chemotherapy thereby complicating its treatment. This would prolong dissemination of the mycobacterium to other members of the family thereby increasing the number of TB cases in the community even further."¹³

The results from this study will help the policy makers to come up with strategies on how to prevent the spread of TB. This can be done by improving the financial and administrative resources of Kabwe town in order to meet the need for proper water supplies and sanitation, make suitable employment and housing available, manage wastes, impose environmental controls and provide health and social services in all parts of the town. This will help reduce the number of infected cases, reduce morbidity and

mortality rates from TB and help improve the health of individuals so that they can be productive citizens both socially and economically.

PROBLEM ANALYSIS DIAGRAM OF FACTORS CONTRIBUTIONS TO THE INCREASE IN TB CASES



OBJECTIVES OF THE STUDY

1.3 GENERAL OBJECTIVE

To determine the factors contributing to the spread of Tuberculosis delete in Kabwe urban.

1.4 SPECIFIC OBJECTIVES

- 1.4.1 To determine the patients' knowledge on TB.
- 1.4.2 To determine how early patients seek medical attention and treatment for TB.
- 1.4.3 To determine if houses are overcrowded.
- 1.4.4 To determine if poor hygienic practices contribute to the spread of TB.
- 1.4.5 To determine if contract tracing is carried out by health staff.
- 1.4.6 To find out if referrals are done between clinics and the hospital.
- 1.4.7 To utilise the study results to make recommendations to relevant authorities.

CHAPTER 2

LITERATURE REVIEW

INTRODUCTION

Tuberculosis is a communicable disease caused by the tubercle bacillus, mycobacterium tuberculosis. The bacillus is transmitted from an infectious patient to a healthy person by coughing or sneezing (droplet infection). The inhaled bacillus settle in the lung and cause a primary infection.

In the majority of cases the TB bacilli are contained by the immune system and remain dormant for the rest of a person's life except for a small number of people who develop the disease in their life time, depending on their immunity. All systems and organs of the body can be the site of infection, but involvement of the lungs is by far the most common. "Pulmonary TB accounts for more than 80% of all cases we see and constitutes the most important form in terms of tuberculosis control strategies."⁵

SPREAD OF TUBERCULOSIS

According to Chiang T M (1991), TB is a chronic, durable but curable disease in which active cases are usually contagious and spread easily to the close intimates, especially in children causing catastrophic complications.¹⁴

In his study on tuberculosis and infection control (1993), Stratton reveals that the inherent delays in conventional laboratory procedures for the isolation and susceptibility

testing of mycobacterium tuberculosis may contribute directly to the spread of tuberculosis.¹⁵ Application of newer methods that are more rapid is essential if the spread of tuberculosis is to be limited.

The increase in tuberculosis is fuelled by cases in populations that are medically under served, including foreign-born persons from high prevalence countries, persons with low incomes, and persons living in long-term-care facilities, especially persons with previous tuberculosis infection. The increase in the incidence of tuberculosis appears to be greatest when sub populations in such circumstances are also at high risk for HIV infection. Since mycobacterium tuberculosis is spread to uninfected persons in aerosols generated by coughing or sneezing, the infectiousness of a patient with active disease can be related, at least in part, to the number of organisms seen on sputum smears.²

Concerns have been raised about whether the interaction between tuberculosis and human immunodeficiency virus (HIV) may lead to a recrudescent tuberculosis pandemic. These concerns are particularly grave in Africa which has a high prevalence of both tuberculosis and HIV. "Tuberculosis is the only one example of a preventable and treatable infectious disease which can be spread through casual contact and which, because of its higher pestilence among the HIV positive population, may lead to a preventable increase in incidence of infection among the general population."¹⁶

Coexisting HIV infection is believe to be responsible for the soaring incidence of tuberculosis in Africa, and for the increase in the number of reported cases in the United States.

DIAGNOSIS OF TUBERCULOSIS

A tuberculin skin test is used in the diagnosis of tuberculosis and to identify those who have been exposed. The test involves an intradermal injection of tuberculin bacillus extract using a syringe and needle or a multiple puncture apparatus. The forearm is the usual site of inoculation. Results are interpreted in 48-72 hours. A positive reaction is characterized by an area of induration of 10mm or greater. Other investigations include Chest X-ray and bacteriological examination of sputum.¹⁷

A study carried out by Gocmen et al in 1994 to determine the diagnostic value of BCG test in comparison with tuberculin test revealed that in pulmonary tuberculosis BCG test was positive in 100% of the cases and also showed informally high positivity in all grades of malnutrition. It was concluded that BCG is more reliable and sensitive than the tuberculin test in the diagnosis of TB, especially in developing countries where the disease is till a major public health problem and where sophisticated methods such as rapid culture with BACTEC and demonstration of bacilli with DNA probes are not widely available.¹⁸

An American Journal, 1994 reveals that the increase in mycobacterial infections has prompted the development of more rapid and efficient ways of detecting and characterizing

mycobacteria in the clinical microbiology laboratory. Methods currently in use or under development include more sensitive methods of direct detection, techniques for culture; identification and susceptibility testing and the use of nucleic acid probes for identification and epidemiologic typing.¹⁹

PATIENTS' KNOWLEDGE ON TUBERCULOSIS

Patients need to know that factors like overcrowding, poor nutrition, poor hygienic practices and inadequate health care contribute to the spread of tuberculosis. With this knowledge, patients can take some initial control measures to prevent spread of the disease.²⁰

TUBERCULOSIS TREATMENT

The last twenty years have seen substantial improvements in TB treatment with the development of highly efficacious treatment regimens. As a result of large scale programmes of carefully controlled clinical trials, the duration of treatment has been progressively reduced from 18 - 24 months to 9 months and now 8 months.

However, in order for these intensive, short course regimes to be effective, anti-TB drugs must be available to all patients. This requires an effective and efficient system of drug procurement and distribution, as well as the availability of health workers to ensure that patients continue to receive these drugs until cured.²¹

Hospitalization in itself has little or no effect on the outcome of treatment. A patient who complies with the treatment regimen will do equally well, whether as an in-patient or out-patient. Before chemotherapy is started, health staff should discuss with the patient the feasibility of him/her being given drugs daily under direct observation of health staff. Admission is necessary for severely ill patients and for those with complications or other serious diseases. Hospitalisation may be required for patients who live very far from the health center and cannot attend clinic daily for the duration of the intensive phase.

Through the National Tuberculosis and Leprosy Control Programme, all patients with confirmed tuberculosis are entitled to anti-TB drugs free of charge. A combination of specific anti-TB drugs in all regimens is necessary to avoid emergence of resistant bacilli and to rapidly eliminate the sensitive bacilli.⁵

The National TB and Leprosy Control programme plan of action for 1994 to 1995 indicates that smear positive pulmonary TB cases should be treated on a short-course chemotherapy of, Daily Ethambutol or Streptomycin, isoniazid, rifampicin and pyrazinamide for two months. This is followed by six months of daily ethambutol and isoniazid.⁵

Smear negative pulmonary and extra pulmonary TB cases receive, Daily isoniazid, rifampicin and pyrazinamide for two months followed by six months of isoniazid and ethambutol.

According to a Weekly Report of 1993 on morbidity and mortality in New York, patients with tuberculosis who fail to complete a standard course of anti-TB therapy are at increased risk for treatment failure and may play a role in both the emergence of drug resistant strains of mycobacterium TB and further spread of TB.²²

Standard treatment regimens are effective, but thiacetazone should be avoided due to its association with severe, cutaneous adverse reactions. Treatment may have to be prolonged in HIV positive cases. Measures to maximize compliance with therapy are paramount and include the use of the shortest possible regimens and ensuring that the regimen is understood by and readily accessible to the patients.³

In a review on Tuberculosis - a disease of the 1990's, Bernardo J. reveals that outbreaks of drug resistant disease have recently occurred, complicating the selection of drugs and affecting the duration of treatment. Despite all of these problems, it is essential to establish a diagnosis and initiate treatment rapidly, both to arrest the disease process and to limit its transmission.²

In the United States, TB therapy is limited due to relative drug resistance, drug intolerance and drug malabsorption. However, potentially useful regimens are being developed.²³

Pregnant women with active TB should start or continue their anti-TB treatment. streptomycin should not be used due to the risk of toxicity to the unborn child. Breast feeding should continue when a mother is on anti TB drugs, unless the baby develops complications that may be caused by TB drugs that are passed through the breast milk.

TUBERCULOSIS CONTROL

The World Health Forum of 1994 recommends that to address the epidemic in Eastern Europe, all countries must follow the recommended guidelines for TB control and to use supervised short-course chemotherapy to treat all cases, particularly sputum smear positive cases, together with WHO's recommended monitoring and evaluation systems. WHO is also urging donor nations to invest in efforts to control TB epidemics as it warns that the social conditions in the region are ripe for a real explosion of TB cases in the next decade.²⁴

Public Health agencies must be vigilant and identify new cases for treatment and begin contact tracing to minimize the spread of tuberculosis.²⁵

"Newly acquired TB infection in HIV-infected patients can spread rapidly and progress rapidly to active disease. There should be heightened surveillance for TB in facilities where HIV-infected persons live, and investigation of contacts must be undertaken

promptly."²⁶

In Zimbabwe, the incidence of TB has also been rising since 1986 due to HIV spread in the country. "On the other hand, Zimbabwe is unique among the countries in Africa because rural clinics and preventive medicine such as immunization, basic sanitation and health education have been well established throughout the country. As a result various communicable diseases common to the tropics and subtropics have been successfully controlled."²⁷

"Tuberculosis, whether HIV-linked or not, can be controlled by the traditional means of case finding and treatment, vaccination with BCG and chemoprophylaxis."²⁸

In his report on Guidelines for preventing the transmission of TB in health care settings, Dooley S.N. points out the basic approaches to be used in prevention of TB.

- a) early identification and treatment of persons with TB.
- b) prevention of the spread of infectious droplet nuclei into the general air circulation.
- c) Surveillance of health - care - facility personnel for TB.

Specific actions to reduce the risk of TB transmission include screening patients for active TB, providing rapid diagnostic services, prescribing appropriate curative and preventive therapy maintaining physical measures to reduce microbial contamination of the air, providing isolation rooms for TB patients, screening health personnel for TB and promptly investigation and

controlling outbreaks.²⁹

CONCLUSION

Literature has revealed that knowledge on spread of Tuberculosis, early investigations and early diagnosis, early and adequate treatment are important in the Control of Tuberculosis.

Therefore, the researcher is hopeful that the factors contributing to the spread of Tuberculosis can be established through this study and solutions, if implemented effectively may improve the control of Tuberculosis in Kabwe urban.

METHODOLOGY

3.1 RESEARCH DESIGN

A descriptive study was used in this research because data had to be systematically collected and presented in order to give a clear picture of the factors contributing to the spread of TB in Kabwe Urban. The study was also quantitative in that the data collected was quantified in numerical values and percentages were calculated for easy manipulation and for making statistical inferences.

3.2 RESEARCH SETTING

The study was conducted in Kabwe at the Chest Clinic, Kabwe General Hospital. A total of 785 patients were infected with Tb as recorded in the Tb register from January to July, 1996.³⁰ The population characteristics of the setting range from the educated to the illiterate. The life style and health related behaviour vary. The researcher chose this setting because it had the highest number of TB cases in Kabwe as a whole.

Secondly, the setting was chosen because it was convenient for data collection since the research study was done alongside other courses during the year.

3.3 STUDY POPULATION

The study population included the TB patients who had attended Chest Clinic between January to July 1996. The total number of patients was 785. These patients were chosen from the reproductive age group (15-45 years old), both males and females.

3.4 SAMPLE SIZE

The estimate number of TB patients who attended chest Clinic between July 30th and August 2nd 1996 was 98. Fifty (50) of these patients were interviewed, represent 6% of the total study population. The sample size was convenient considering the limited time that the researcher was faced with.

3.5 SAMPLING METHOD

Some numbers were written on pieces of paper. These numbers ranged from one to a hundred (1-100). All patients attending Chest clinic were asked to pick one number. Those who picked numbers from one (1) to fifty (50) were interviewed.

This sampling method ensured that the TB patients had equal chances of being selected in the sample. The method also eliminated biasness in the selection of study subjects.

3.6 DATA COLLECTION TECHNIQUE

Data was collected using a structured interview schedule. A face to face interview was conducted using an interview schedule because:

- a. Questions that were not clear could be clarified during the interview and hence all respondents would have uniform questions.
- b. The study population consisted of both literature and illiterate patients.
- c. The researcher could make observations on the environment and pick up non-verbal cues.

To control for limitations of the interview method, the researcher introduced herself and the significance of the study for the respondents to appreciate the study.

3.7 ETHICAL CONSIDERATION

In order to conduct the study at the chest clinic, Kabwe General Hospital, the researcher sought permission from the relevant authorities. The purpose and nature of the study was explained as well as how the findings would be used. Permission was also sought from the participants and they were informed that they had a right to accept or refuse to participate in the interview. They were assured of confidentiality and anonymity of data.

3.8 PILOT STUDY

A pilot study was done at the chest clinic, UTH to pretest and assess the validity of the data collection tool. Ten (10) subjects were selected for the pilot study so as to assess the reactions of the respondents to the research procedure. Time

needed to complete the study was estimated following the pilot study. The feasibility of the sampling procedure was assessed as well as the appropriateness of the format of the questionnaire.

A few amendments were made after the pilot study. One question was omitted because it evoked the same response as the next question. A concluding question was added on the questionnaire.

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 INTRODUCTION

The data collected from fifty TB patients at Chest clinic was analysed into frequency tables, cross tabulations, numerical descriptions and percentages. The data was analysed manually.

The data was checked and edited for competence and accuracy. Responses from open ended questions were categorized and coded. Descriptive statistics using frequency distribution and percentages were used in tabulating data. This was to facilitate comparison of the same data and summarizing the findings. This type of analysis made it easier to remember facts. Frequencies were made by simple tallying.

4.2 PRESENTATION OF FINDINGS

TABLE 1: SOCIO-DEMOGRAPHIC DATA

	n = 50
a. <u>AGE GROUP</u>	
17 - 21	9 (18%)
22 - 26	12 (24%)
27 - 31	14 (28%)
32 - 36	5 (10%)
37 - 42	10 (20%)
b. <u>SEX</u>	
Male	24 (48%)
Female	26 (52%)
c. <u>MARITAL STATUS</u>	
Single	17 (34%)
Married	22 (44%)
Divorced	7 (14%)
Widowed	4 (8%)
d. <u>EDUCATIONAL LEVEL</u>	
None	4 (8%)
Primary	25 (50%)
Secondary	15 (30%)
College	6 (12%)
e. <u>OCCUPATION</u>	
None	7 (14%)
Self employed	25 (50%)
General Worker	12 (24%)
Civil Servant	4 (8%)
Management	2 (4%)

	n = 50
f. <u>MONTHLY EARNINGS</u>	
None	7 (14%)
Below K50,000	26 (52%)
K50,000-K100,000	12 (24%)
Above K100,000	5 (10%)

Table 1 shows that the majority of patients 14 (28%) were aged between 27-31 years old and 12 (24%) were aged between 22 - 26 years while only 9 (18%) were aged 17 - 21 years old. The largest number 26 (52%) of respondents were female. Most of the patients 22 (44%) were married. Half of the total number of respondents 25 (50%) had acquired primary education while 4 (8%) had not been to school.

The majority of respondents 25 (50%) were self employed, while another 4 (8%) were Civil Servants and a minority 2 (4%) were in management. The majority of respondents 26 (52%) earned below K50,000 while the minority 5 (10%) earned above K100,000.

TABLE 2: PATIENTS' KNOWLEDGE ON CAUSES OF TB

CAUSES OF TB	FREQUENCY/PERCENTAGE
No idea	43 (86%)
Tubercle bacilli	7 (14%)
TOTAL	50 (100%)

As regards the cause of TB, Table 2 indicates that the majority of patients 43 (86%) had no idea while only 7 (14%) knew what causes TB.

TABLE 3: PATIENTS' KNOWLEDGE ON SPREAD OF TB

SPREAD OF TB	FREQUENCY/PERCENTAGE
No idea	37 (74%)
Air borne	13 (26%)
TOTAL	50 (100%)

Table 3 indicates that 37 (74%) of patients had no idea on how TB is spread. While 13 (26%) knew that TB is an air borne disease.

TABLE 4: PATIENTS' KNOWLEDGE ON DURATION OF TAKING ANTI-TB DRUGS

DURATION OF TREATMENT	FREQUENCY/PERCENTAGE
Two months	16 (32%)
Six months	5 (10%)
Eight months	10 (20%)
One year	4 (8%)
No idea	15 (30%)
TOTAL	50 (100%)

Table 4 indicates that 16 (32%) of the patients claim they are on anti-TB therapy for two months, 10 (20%) for eight months and 15 (30%) had no idea for how long their treatment would last.

TABLE 5: PERIOD OF TIME TAKEN BY PATIENT BEFORE SEEKING MEDIAL TREATMENT

TIME TAKEN TO SEEK MEDICAL TREATMENT	FREQUENCY/PERCENTAGE
One week	19 (38%)
Two weeks	27 (54%)
Three weeks and more	4 (8%)
TOTAL	50 (100%)

Table 5 shows that the majority of patients 27 (54%) took two weeks after onset of illness to seek medial treatment while 4 (8%) took three weeks and more to seek medical treatment.

TABLE 6: NUMBER OF ROOMS IN HOUSES OCCUPIED BY PATIENTS

NUMBER OF ROOMS	FREQUENCY/PERCENTAGE
One	18 (36%)
Two	5 (10%)
Three and more	27 (54%)
TOTAL	50 (100%)

Table 6 indicates that the majority 27 (54%) of patients live in three or more room houses while 18 (36%) live in one room houses.

TABLE 7: WHERE PATIENTS DISPOSE OF SPUTUM WHEN COUGHING

DISPOSAL OF SPUTUM	FREQUENCY/PERCENTAGE
Anywhere	3 (6%)
Handkerchief	20 (40%)
Tin	12 (24%)
Bury in soil	15 (30%)
TOTAL	50 (100%)

Table 7 indicates that the majority of patients 20 (40%) use a handkerchief for sputum disposal when coughing while 3 (6%) spit out the sputum anywhere.

TABLE 8: WHAT HEALTH WORKERS EDUCATED PATIENTS ON AS REGARDS THEIR ILLNESS

HEALTH WORKERS HEALTH EDUCATION	FREQUENCY/PERCENTAGE
Nothing	41 (82%)
Not to spit anyhow	6 (12%)
Family members to come for examination	3 (5%)
TOTAL	50 (100%)

Table 8 shows that the majority of patients 41 (82%) have not been educated as regards TB.

TABLE 9: EXAMINATION OF FAMILY MEMBERS BY A DOCTOR TO EXCLUDE TB

EXAMINATIONS BY DOCTOR	FREQUENCY
Yes	5 (10%)
No	45 (90%)
TOTAL	50 (100)

Table 9 shows that the majority of family members 45 (90%) have not been examined to exclude TB, while 5 (10%) have been examined.

TABLE 10: REFERRAL OF PATIENTS TO CHEST CLINIC AT THE HOSPITAL FOR TB INVESTIGATIONS

WHO REFERRED PATIENT	FREQUENCY/PERCENTAGE
Clinic staff	17 (34%)
Private Surgery staff	3 (6%)
Traditional Healer	3 (6%)
Self	27 (54%)
TOTAL	50 (100%)

Table 10 indicates that the majority of patients 27 (54%) referred themselves to the hospital for TB investigations, while only 17 (34%) were referred by clinic staff.

TABLE 11: GIVING OF REFERRAL LETTERS TO PATIENTS REFERRED TO HOSPITAL BY HEALTH STAFF

IF GIVEN REFERRAL LETTER	N = 20
	FREQUENCY
Yes	8 (16%)
No	12 (24%)
TOTAL	20 (40%)

Table 11 shows that the majority 12 (24%) patients were not given referral letters to the hospital, while the rest 8 (16%) were given referral letters.

TABLE 12: LEVEL OF EDUCATION IN RELATION TO TIME TAKEN BEFORE SEEKING MEDICAL TREATMENT

LEVEL OF EDUCATION	TIME TAKEN IN WEEKS			
	ONE	TWO	THREE AND MORE	TOTAL RESPONDENTS
None	0	4 (100%)	0	4 (8%)
Primary	10 (40%)	13 (52%)	2 (8%)	25 (50%)
Secondary	5 (33.33%)	10 (66.67%)	0	15 (30%)
College	4 (66.67%)	0	2 (33.33%)	6 (12%)
TOTAL				50 (100%)

Table 12 shows that 12 (52%) of patients with primary level of education sought treatment within two weeks of being ill while 2 (8%) of those with primary level education took three months and more to seek medical treatment.

TABLE 13: PATIENTS KNOWLEDGE ON THE SPREAD OF TB IN RELATION TO TIME TAKEN TO SEEK MEDICAL TREATMENT

KNOWLEDGE ON SPREAD OF TB	TIME TAKEN IN WEEKS			
	ONE	TWO	THREE+	TOTAL
No Idea	13 (35%)	20 (54%)	4 (10.8%)	37 (74%)
Air borne	7 (53.85%)	6 (46.2%)	0 (0%)	13 (20%)
TOTAL				50 (100%)

Table 13 shows that 20 (54%) patients who had no idea about the spread of TB sought medical treatment within two weeks of being ill, while 4 (10.8%) patients with no idea about the spread of TB took three or more weeks to seek medical treatment.

TABLE 14: DISPOSAL OF SPUTUM IN RELATION TO KNOWLEDGE ON SPREAD OF TB

SPUTUM DISPOSAL	KNOWLEDGE ON SPREAD OF TB		
	No Idea	Air borne	TOTAL
Handkerchief	10 (50%)	10 (50%)	20 (40%)
Tin	2 (16.67%)	10 (83.33%)	12 (24%)
Bury in soil	6 (40%)	9 (60%)	15 (30%)
Anywhere	3 (100%)	0 (0%)	6 (12%)
TOTAL			50 (100%)

Table 14 indicates that 3 (100%) patients of those with no knowledge on the spread of TB spit out sputum anywhere while 10 (50%) of patients dispose of the sputum in a handkerchief, 16.67% use a tin to spit in and 40% bury in soil.

TABLE 15: SUGGESTIONS BY PATIENTS ON HOW SERVICES FOR TB PATIENTS CAN BE IMPROVED AT CHEST CLINIC

SUGGESTIONS	FREQUENCY
None	5 (10%)
To have more staff working at chest clinic	15 (30%)
Staff to teach patients on TB	20 (40%)
Ensure availability of anti-TB drugs at all times	10 (20%)
TOTAL	50 (100%)

Table 15 indicates that the majority of respondents 20 (40%) would like the members of staff at chest clinic to teach them on TB while 15 (30%) of respondents want to have more members of staff to work at chest clinic to ease the congestion of patients.

DISCUSSION OF FINDINGS AND IMPLICATIONS TO THE HEALTH SYSTEM

5.1 INTRODUCTION

This research study was aimed at determining the factors contributing to the spread of Tuberculosis in Kabwe urban. The sample consisted of fifty (50) Tb patients who were randomly selected at the chest clinic.

The findings of the research are discussed in this chapter. Relevant implications for the health service have been made.

5.2 DISCUSSION OF FINDINGS

SOCIO-DEMOGRAPHIC DATA

Most of the respondents, 28% were aged between 27-31 years old, 24% were aged between 22-26 years old. The majority of respondents, 44% were married. The higher percentage of respondents, 52% were female. 50% of the patients have acquired primary level education while 8% have had no formal education. About 50% respondents are self employed and earn about K50,000 per month from their various businesses. Only 10% earn above K100,000.

The above picture shows that most of the patients come from low socio-economic bracket. Because of a low educational background,

most of them are not formally employed and earn very little money to sustain their families. Most people in low socio-economic communities are poverty stricken, they live in shanty compounds which are overcrowded, have poor environmental sanitation and lack adequate health care facilities. Tb spreads easily in such communities, especially because the body's defence mechanism is lowered due to poor diets and repeated attacks of other diseases like diarrhoea and malaria.

Patients Knowledge on TB

The majority of patients 86% had no idea about what causes TB, (Table 2). As regards how often anti-TB drugs are taken, 22% claim to take them more than once a day. Table 3 clearly points out the fact that 74% of patients had no idea on how TB is spread.

This situation is alarming. The lack of knowledge on TB, its cause and spread can be attributed to lack of health education by health staff to the community on TB. It can also be due to lack of understanding of the disease TB due to low educational levels of the communities in which TB is prominent. According to Vennema (1983), in his report on the status of TB control in New York City, low percentages of continuity and completion of treatment were due to failure to alert patients on the seriousness of their disease and the need for chemotherapy.²

A study done by Malambo (1994) revealed that patients had low knowledge on the cause, duration of treatment, prevention and

control of TB.¹³ This is in line with what this study has also revealed.

It is very important that health workers intensify health education to the community to control the spread of TB. As revealed by this study, 82% of respondents have not been educated on TB. (Table 9). The need for health education has also strongly come out in the suggestions made by the respondents, Table 16, where 40% patients would like the staff at chest clinic to teach patients on TB instead of taking it for granted that they must have some knowledge since they are TB patients. Without the education, patients will continue being ignorant about TB, its spread and control and the disease will continue spreading. Morbidity and mortality rates will continue to rise.

Because patients lack knowledge on TB they seek medical treatment late. This study reveals that the majority of those with no idea on the spread of TB, 54% sought medical treatment after two weeks of being ill while 10.8% took three weeks or more to seek medical attention. Even those patients who knew that TB is an air borne disease 46.2% took two weeks to seek medical help. (Table 13) This shows that knowledge on TB is very important for patients to seek medical treatment early and hence prevent the spread of the disease.

This study also reveals that the level of education that a patient has acquired has a bearing on how early the patient

sought medical treatment. (Table 12). All patients with no formal education (100%) took two weeks to seek medical help. Among those with primary level education, 40% reported to a health center within one week of falling ill while 8% waited for three weeks or more before seeking medical help. However, even among the patients who have acquired college level education, 33.33% sought medical treatment three weeks or more than three weeks after illness.

The above situation increases the rate of spread of TB because patients wait for too long before they seek medical help. If patients were screened early and investigations done early as well as starting treatment on time the spread of TB would be controlled. Even though the number of patients seeking medical help later than three weeks may seem low, 33.33% they can easily spread the infection to a large number of people in the community. This is in line with a study by Caldwell (1994) in which he reveals that Tuberculosis remains an important public health issue because of the possibility of transmission from small pockets of diseased persons to the larger community.²⁴

HYGIENIC PRACTICES

This study shows that all the patients who had no knowledge on the spread of TB (100%) spat out sputum anywhere. The rest of the patients either used a handkerchief or tin to spit in (Table 14). The few that spit out sputum anywhere are a great danger to the community as the mycobacteria is air borne and spreads

easily.

There is need to educate patients on proper disposal of sputum to prevent further spread of TB.

The study also shows that 58% of the patients have separate eating utensils in their homes while the rest, 42% use the utensils that are used by the rest of the family. If the patients wash hands with soap and water, especially after coughing or handing sputum then TB can be prevented from spreading to others if eating utensils are handled by such a person. Since TB can affect most of the systems in the body it is important to ensure that proper hygienic practices are maintained so that the mycobacterium is not ingested or inhaled.

HOUSING PATTERNS

The study shows that 54% of the respondents live in houses which have three rooms. Another 36% live in single rooms with their families. (Table 6) The problem of overcrowding is a very serious one because of the danger of exposing other members of the family to the disease. There is very poor ventilation in most of the houses. This type of housing is common in low socio-economic communities especially in shanty compounds. It is therefore very important to educate communities on the dangers of overcrowding, importance of isolating ill members of the family and proper ventilation of houses.

CONTACT TRACING

The study reveals that only 10% of the patients' families have been traced and examined to exclude TB. The rest, 90% have not been contacted or followed up for medical check up. (Table 9) This shows that health staff do not place much importance on contact tracing in order to detect TB early and treat it before it spreads further. This supports the revelation by Caldwell, (1994) that Physicians and public health agencies must be vigilant and identify new cases for treatment and begin contact tracing to minimize the spread of tuberculosis.²⁴

Understaffing at the chest clinic could also be one of the reasons why contact tracing is not done on a large scale. Among the suggestions made by respondents 30% would like chest clinic to have more staff in order to reduce the congestion of patients experienced. (Table 15)

REFERRAL SYSTEM

There is a very poor referral system between health centers and chest clinic. Only 16% of the patients who are referred to the hospital from other health centers were given referral letters while 24% were not given any referral letters (Table 11). The majority of patients 54% referred themselves to the hospital. Interestingly, 6% were referred to the hospital by traditional healers. (Table 10)

A study done by Malambo (1994) on factors contributing to the Poor Adult Referral System in Lusaka urban, revealed that there was no feed-back of referred patients and outcomes of referrals were not known¹³. Lack of referral forms could have contributed to lack of communication between health centers and the hospital. Lack of communication would lead patients to stay at home without treatment and this health hazard would further encourage the spread of TB in communities.

5.3 IMPLICATIONS TO THE HEALTH SYSTEM

The study has revealed that patients know very little about TB despite suffering from it. There is need to intensify information, education and communication to the communities through health workers. This must be one of the top priorities in preventing the spread of TB. The cause, spread and control of TB must be taught to communities in order to prevent the spread of the disease. Most of the factors that have been identified as contributing to the spread of TB in Kabwe urban stem from the lack of knowledge on the disease, its cause, spread and control. Because of this patients seek medical help quite late, some patients spit anywhere and thus increase the chances of spreading TB. There is need to educate families in the communities on the dangers of overcrowding. Health workers contribute to the spread of TB by not tracing other family members of the patient to examine them and start early treatment if necessary. There is need to adequately staff the chest clinic

so that contact tracing is conducted without fail. The referral system must also be improved upon. A feedback mechanism must be put in place if hospitals and other health centers are to work in harmony for the good of the patients. With collective efforts and cooperation among health workers the situation can be improved.

CHAPTER 6

6.1 CONCLUSION

The purpose of this study was to establish factors contributing to the spread of tuberculosis in Kabwe Urban. Results in this study are based on the responses from a randomly selected sample of fifty (50) patients who are currently on treatment for TB. The study revealed that most patients are of a low social-economic status and hence cannot afford well balanced meals to improve the immunity system. They live in overcrowded rooms and thus expose other family members and the community at large to TB infection. Hygienic practices are poor, some patients spit out sputum anywhere and hence endanger others' lives since the mycobacterium is air borne.

Patients seek medical treatment late because they have no knowledge on the spread of TB.

There is very little contact tracing done by health personnel to screen, investigate and treat members of families where TB patients come from. Because of this, patients stay at home with the infection and spread it to other members of the community.

The referral system is poor. Most patients refer themselves from health centers like clinics to the hospital for TB investigations. Only a few of those referred by health center staff are given referral letters. The patients who are not

referred to the hospital for TB investigations get discouraged and stay home. These patients then infect others unknowingly and so TB continues to spread. The morbidity and mortality rates continue to rise.

As can be seen from the foregoing this dismal situation has to be corrected. Concerted efforts by government, non-governmental organisations and the community have to be made in order to correct the situation. The results of this study have far reaching implications in the advent of the HIV/AIDS epidemic.

6.2 RECOMMENDATIONS

6.2.1 There is need to intensify information, education and communication in all health facilities.

6.2.2 The Government must improve the living conditions of people in the low socio-economic class. Low cost houses which are well ventilated can be built, environmental sanitation can be improved upon and jobs should be created to enable persons to have some income for a livelihood.

6.2.3 Hospitals should have, and reinforce policies on contact tracing of TB patients.

6.2.4 Hospitals and other health facilities must have referral systems.

6.3 LIMITATIONS OF THE STUDY

The study was done alongside other courses in the year, hence it was difficult to devote the desired time and effort to the study. The funding for the research project was insufficient and so this compelled the researcher to have small sample (fifty) considering that trips had to be made between Kabwe and Lusaka. The sample size was, however, convenient considering the limited time as well as the study population at the time of data collection. Those interviewed provided responses to the questions and clarified assumptions. Results from this study could not be generalised to all TB cases in Kabwe since the sample was restricted to Kabwe Urban.

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25th July, 1996

The Director
Kabwe General Hospital
Box 80917
LUSAKA



u.f.s. Head - ~~Post Basic Nursing~~

Dear Sir/Madam,

re: RESEARCHH STUDY : REQUEST TO COLLECT DATA

I am a fourth year student in the School of Medicine, Department of Post Basic Nursing of the University of Zambia, pursuing a Bachelor of Science Degree in Nursing.

As part of the patial fulfilment for a Degree programme I am required to carry out a research study for me to graduate. My chosen topic is "Factors Contributing to the Spread of TB in Kabwe Urban."

I intend to collect data from a randomly selected sample of patients during July - August period, 1996.

The purpose of this letter is to kindly ask for permission to enable me carryout the study in the mentioned town.

Thanking you in anticipation.

Yours faithfully,

Jenny K. Kabubi

Jenny K. Kabubi (Miss)
BSC N IV STUDENT



MINISTRY OF HEALTH

KABWE GENERAL HOSPITAL

Our Ref: RN/6490

P O Box 80917

KABWE

Your Ref:

Telephone: 222301-6

Fax : 260-05-223049

9th August 1996

Ms Jenny K Kabubi
University of Zambia
Department of Post Basic Nursing
P O Box 50110
LUSAKA

Dear Madam

RE: RESEARCH STUDY

We are in receipt of your letter dated 25th July 1996 in which you are requesting to carry out a study in "Factors contributing to spread of TB in Kabwe Urban".

The management have no objection, only that we would like to know your schedule of your programme since you have indicated that the study is in Kabwe Urban.

For further arrangement of your programme, please contact the Senior Nursing Officer for direction.

Yours faithfully

DOREEN BANDA
SENIOR NURSING OFFICER
for: ACT EXECUTIVE DIRECTOR

BACKGROUND INFORMATION

FOR OFFICIAL USE

1. How old were you on your last birthday? []

.....

2. Sex

a. Male []

b. Female [] []

3. Marital status

a. Single []

b. Married []

c. Divorced [] []

d. Widowed []

e. Separated []

4. What is your educational level?

a. None []

b. Primary []

c. Secondary [] []

d. College []

e. University []

5. What is your occupation? []

.....

6. How much money do you earn per month? []

.....

KNOWLEDGE ON TB

FOR OFFICIAL USE

7. What have you been told is wrong with you? []
.....
8. What causes T.B? []
.....
9. How is TB spread? []
.....
10. Are you on treatment for TB? []
a. Yes []
b. No []
11. If yes to question (11) what medicine are you taking? []
.....
12. How often do you take your drugs? []
a. Once a day []
b. Twice a day []
c. Three times a day []
d. Any other, specify []
.....
13. For how long are you on treatment? []
a. Two months []
b. Six months []
c. One year []
d. One year, six months []
e. Any other, specify []
.....

FOR OFFICIAL USE

14. Have you suffered from T.B. before? []
- a. Yes []
- b. No []
15. If yes to question (15), were you on treatment? []
- a. Yes []
- b. No []
- c. N/A []
16. If yes to question (16) for how long was your treatment? []
- a. Two months []
- b. Eight months []
- c. One year, six months []
- d. Not applicable []
- e. Any other, specify []
17. Where do you get your TB treatment from? []
- a. Hospital []
- b. Clinic []
- c. Any other, specify []

EARLY TREATMENT

18. When did you become ill? []
-
19. How long did it take before you decided to go []
- for treatment?
-

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20. Where did you go for treatment? []
- a. Hospital []
- b. Clinic []
- c. Traditional Healer []
- d. Any other, specify []
-

HOUSING PATTERNS

21. How many rooms does your house have? []
- a. One []
- b. Two []
- c. Three []
- d. More than three []
22. How many people live in your house? []
-
23. How many windows does your house have? []
-
24. Does your house have piped water? []
- a. Yes []
- b. No []
25. If no to number (24), where do you draw water from? []
-

NUTRITIONAL STATUS

FOR OFFICIAL USE

26. How many meals do you have per day? []
- a. One []
 - b. Two []
 - c. Three []
 - d. Any other, specify []
.....
27. How often do you eat nshima with the following? []
- a. Meat.....
 - b. Fish.....
 - c. Beans.....
 - d. Vegetables.....
 - e. Other, specify.....

HYGIENE PRACTICES

28. Where do you dispose of sputum when you are coughing? []
- a. Anywhere []
 - b. Handkerchief []
 - c. Bury in soil []
 - d. Any other, specify []
29. Do you have separate eating utensils in your home? []
- a. Yes
 - b. No

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30. What do you use to wash the eating utensils? []
- a. Soap and water []
 - b. Ash and water []
 - c. Water only []
 - d. Any other, specify []
.....
 - e. Don't know []

CONTACT TRACING

31. After diagnosis what were you told about your family in relation to your condition? []
-
-

32. Have your family members been examined by a doctor to exclude TB? []
- a. Yes []
 - b. No []

TB REFERRAL SYSTEM

33. Who referred you to Kabwe General Hospital for TB investigations? []
- a. Clinic staff []
 - b. Private surgery staff []
 - c. Hospital staff []
 - d. Traditional Healer []
 - e. Self []

FOR OFFICIAL USE

34. If you were referred to the hospital, were you given
a referral letter? []

a. Yes []

b. No []

35. What are your suggestions concerning the services for
TB patients at Chest Clinic, Kabwe General Hospital?

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