CHAPTER 10 Tuberculosis Control Guidelines

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These guidelines refer principally to the organization of the AR Tuberculosis Control Programme at the BHU Level. The TB Control Programme has three main goals:

1) To identify, treat and follow people with pulmonary or extrapulmonary cases of TB;

2) To protect family members of the TB patient against infection;

3) To educate the RV community about the way TB is transmitted and the ways to prevent TB.

Many BHU health team members have important roles to play in the TB Control Programme. The Medical Officer of the BHU is in charge of TB control and is responsible for organising the work in the BHU and other TB control activities in the refugee village (RV).

1. T.B. Control Steps and Activities

The TB Control Programme includes the following steps and activities.

1.1 Patient Registration

The nurse or registrar channels Afghan Refugees to the Medical Officer (male patients) or the Lady Health Visitor (female patients).

1.2 Collection of Specimens

If TB is suspected, a sputum is taken. This is done as described in Section 2.3.2 below by a malaria supervisor or another member of the team assigned the

duty (male patients), or by an LHV or Midwife (female patients).

1.3 Recording Specimen

A malaria supervisor or another team member assigned by the Medical Officer is responsible for recording the sputum specimen in the sputum register and for sending the specimen to the laboratory.

1.4 Transport of Specimen

The Medical Officer arranges frequent transport of specimens (both TB and malaria) to the laboratory in consultation with the FSMO. If daily transport is not possible, specimens are to be kept adequately overnight according to the instructions in Section 2.3.3.

1.5 Receiving Results

The team member responsible for recording the specimen must ensure that the results are received from the laboratory without any delay. The team member is to notify the Medical Officer if results do not come back within 10 days. All results are taken to the Medical Officer.

1.6 Establishment of Records

The MO is responsible for establishing proper TB records for patients; for entering the information on laboratory (and other) results, as well as the decision on standard treatment, on the card; and for conveying any decisions to the other members of the team (LHV/Dispenser).

A description of the TB Record form (AR-5) appears in Appendix C.

1.7 Starting Treatment

During the second visit of a patient with confirmed TB to the BHU, the Medical Officer or LHV will start the treatment according to the regime.

1.8 Administration of Drugs

Drugs will be administered by the Dispenser or Mid-wife during the patient's bi-weekly visits (non super-vised treatment).

1.9 Follow-up of Treatment

The Medical Officer and LHV will see the patient at least once or twice a month to assess the progress. The Medical Officer will check all TB treatment re-cords once a month and take appropriate steps in the case of patients who do not come for treatment or a supply of drugs. A Community Health Worker may be asked to locate and bring the patient to the BHU.

1.10 Health Education

Health education at each visit of the patient is re-quired to emphasize the importance of treatment and other measures the patient must take to prevent the disease from spreading.

1.11 Contacts

The Medical officer must advise the head of the family of a patient with TB to bring the other mem-bers of the family for examination. Besides clinical examination, sputum specimens of each adult family member with chronic chest symptoms should be sent to the laboratory. If the head of the family refuses to bring the family members for examination, the

Medical Officer, in consultation with the RV administration, must report the matter to the "Group Leader"

1.12 Tracing of Patients Who Do Not Come for Treatment

In case a patient does not continue regular treatment, the Dispenser and the LHV must inform the Medical Officer immediately. The Medical Officer must contact the patient or the head of the family to bring the patient back for regular treatment. If this does not suffice, the MO must report the problem to the RV administration and to the "Group Leader".

1.13 Involving the Community Health Worker

As soon as the Community Health Worker network is established in a camp, CHWs will be assigned the duty of regular contact with the family and with the TB patient and of direct supervision of the treatment.

1.14 Vaccinating Children

Children under 10 years of age living in contact with TB patients and without BCG scars must receive BCG vaccination.

2. TB-Case-Finding

2.1 The role of TB-case-finding

The purpose of TB-case-finding is to identify those persons who have active TB and those who, because of their living situation, are at risk for acquiring the disease.

2.2 Categories of Persons with Potential TB

There are three groups of people who are most likely to have pulmonary tuberculosis and they must be examined to determine if they do. The greatest number of patients with pulmonary tuberculosis will be discovered by examining these people.

Group 1: Symptomatic

The "symptomatic" group are people who come to a BHU and have one or more of the following "Chest Symptoms":

- cough for two weeks or more;
- chest pain for two weeks or more;
- fever for two weeks or more;
- blood in the sputum (haemoptysis).

Group 2: Symptomatic Contacts

The "symptomatic contacts" are the people living in contact with persons with known tuberculosis and having one or more of the "Chest Symptoms".

Group 3: Non-Symptomatic, X-ray Suggestive

The "non-symptomatic, X-ray suggestive" are people having recent chest X-rays that suggest active pulmonary TB.

2.3 The Role of Sputum Specimens in Detecting TB

Sputum specimens are analyzed in the laboratory for

evidence of the tubercle bacilli in two ways: (1) a smear is made of the sputum on a slide which is examined under a microscope and (2) the sputum is placed in a special culture media that encourages the growth of organisms and the characteristic growth of the tubercle bacilli is identified. The tubercle bacilli can be identified on a slide immediately; it takes six to eight weeks for the bacilli to grow in a culture.

The only means by which pulmonary TB can be detected with certainty is by examination of a sputum smear and a sputum culture. Doubtful and abnormal chest X-rays are not sufficient to establish a proper diagnosis of pulmonary tuberculosis. Treatment for pulmonary TB is never to be started based on an abnormal X-ray. Individuals who have abnormal chest X-rays require additional investigation to determine if treatment is appropriate.

The first step of case-finding is to interview people attending the BHUs. If they fit into any of the three groups named in Section 2.2, the health worker should ask for a sample of sputum and should send the specimen to the laboratory for analysis.

2.3.1 Time of Sputum Collection

Three samples of sputum should be collected from each person suspected of having TB at the following times:

One: on the spot at the time of the first visit;

Two: an early morning specimen (consisting of all sputum raised within 1 hour after rising);

Three: on the spot at the time the second specimen is brought to the BHU.

2.3.2 Method for Sputum Collection

- Sputum samples should be collected in open air. If for any reason this is not possible, they should be collected in a very well lighted and ventilated room.

- The person should first rinse the mouth with clean water. It is better if the person has not yet eaten the first meal of the day.

- A trained staff member must:

(1) Explain to the patient the reason for examination, how to breathe deeply and cough so that the expectoration is from as deep down in the chest as possible.

(2) Open a sputum container, keep the lid and give only the bottom part to the patient.

(3) Stand behind the patient and ask the patient to hold the sputum container close to the lips and spit into it.

(4) Check the quality and quantity of the sputum.

NOTE: The specimen must be at least 2–5 ml. It must contain solid (caseous) or purulent particulars, not just saliva. If not enough sputum is obtained, the staff member should encourage the patient to spit again. The patient may need several minutes to produce a good sputum. In case of no expectoration at all, the container should be considered as used and must be disposed of properly.

(5) Close the sputum container securely, label it and store it for transport or fixing.

(6) Wash his/her hands (with soap, water, alcohol).

(7) Record all requested data in the BHU's Sputum Register and in the Dispatch List.

(8) Give the patient a new container and proper instructions on how to collect the early morning specimen, how the container has to be closed and when to bring it back to the BHU.

2.3.3 Storage of Sputum Specimens

Sputum specimens should be stored in a cool and dark place. Storage time should not exceed one day. If possible, send the specimen to the laboratory on the day of collection. Sputum specimens do not last more than 1 day at 25 degrees C. and 12 days at 4 degrees C. respectively. If a refrigerator is not available, an addition of 2 to 4 ml. of 1% Boric Acid to the sputum would help preserve it.

2.3.4 Dispatch of Sputum Specimens

Special storage and transport boxes will be provided.

With each transport box, include the dispatch list which identifies the sputum specimens in the box from the BHU.

A staff member must verify for each box:

- that the total number of containers corresponds to that on the dispatch list;

- that the sputum number on each container corresponds to the sputum number on the dispatch list;

- that the dispatch list contains the requested information for each patient.

After this check is made, the staff member:

- marks the date of dispatch on the list;

- closes the transport box carefully;

- puts the list in an envelope and attaches that on the box.

2.3.5 Dispatch of Fixed Smears

When it is impossible to guarantee correct storage and/or transport of sputum specimens, the BHU staff will be requested to make a fixed smear of each sputum. Each smear will then be:

- identified by the sputum number;

- wrapped in paper (to protect it from dust and sand);

- checked according to the steps for Dispatch of Sputum Specimens Section 2.3.4;

2.3.6 Report of Results

The results of the examination will be reported from the laboratory to the BHU on the same accompanying list which the BHU sent with the transport box.

2.4 Categories of Children with Potential TB

Usually sputum cannot be obtained from children. Often sputum is negative even on culture.

Which Children Should be Treated:

1. Any child below two years without prior B.C.G. vaccination and with Mantoux test (5 T.U. P.P.D.) of more than 5 mm of diameter.

2. Any child who fails to gain weight over 2-3 months, having mainly excluded improper feeding, worms, malaria, typhoid or paratyphoid infections, malignancies.

3. Any child who fails to return to normal health after measles and whooping cough, after symptomatic treatment.

4. Any child with sudden febrile illness with chest symptoms and/or pleural effusion, persistent after symptomatic treatment.

5. Any elder child or adolescent who loses weight, has chronic respiratory symptoms and X-ray of the chest suggestive of tuberculosis.

2.4.1 Notes on TB in Children

A child suspected of having tuberculosis should always be examined with Mantoux test (5 T.U. P.P.D.).

In BCG – vaccinated children it is usually safe to assume that a tuberculin non-reactive child is non infected (free of contact with tuberculosis).

When you suspect tuberculosis with haematogenous spread (miliary and meningitis) immediately refer the

patient to a hospital.

B.C.G. vaccination protects children from dying of tuberculosis and should be performed as soon as possible, better at birth.

2.5 Extrapulmonary Tuberculosis

In most of the cases of extrapulmonary tuberculosis, the lungs are not infected. The infection is localized either in the bones, the kidney, the liver or in other organs of the body. Therefore, persons with extrapulmonary tuberculosis are not excreting tuberculosis bacilli and cannot infect other people with tuberculosis.

For case-finding activities, persons with extrapulmonary tuberculosis fall into two groups:

1. Extrapulmonary tuberculosis without "Chest Symptoms".

2. Extrapulmonary tuberculosis with "Chest Symptoms".

When "Chest Symptoms" are present always ask for sputum tests.

2.5.1 Tuberculosis of Lymph Nodes

Tuberculosis lymphadenopathy is the most common form of extrapulmonary tuberculosis.

The decision to treat these patients should be based on the following clinical criteria:

size of node,

suppuration,

progression (nodes increasing in size and number).

3. Treatment of Tuberculosis

Proper treatment of tuberculosis is important for the health of the individual and of the community. Each infective TB patient who is not treated may infect ten to twelve people in his family and community in one year.

3.1 Categories of Persons to be Treated

The people who are to receive ambulatory treatment for tuberculosis can be classified into four categories according to laboratory, chest X-ray and physical findings. These four are: (1) Sputum Smear Positive, (2) Sputum Smear Negative-Culture Positive, (3) Sputum Smear Negative-Chest X-ray Suggestive-Chest Symptom(s) and (4) Sputum Smear Negative-Chest X-ray Suggestive-No Chest Symptoms. A description of the treatment of these people is as follows:

Category 1: Sputum Smear Positive

Sputum smear positive means that many tubercle bacilli are present in the sputum and are detected by microscopy examination. This patient is very infective to other people.

Action: Start the patient on TB treatment (either the 12 months Standard Treatment Regime or 8 months Short Course Regime).

Category 2: Sputum Smear Negative-Culture Positive

Sputum smear negative-culture positive means that

not very many tubercle bacilli are present in the sputum. Tubercle bacilli have not been detected by examination of smears, but were found by culture examination of the sputum. This patient is infective to other people.

Action: Start the patient on Tuberculosis Treatment (either the 12 months Standard Treatment Regime or the 8 months Short Course Treatment Regime).

Category 3: Sputum Smear Negative-Chest X-ray Suggestive-Chest-Symptom (s)

Sputum smear negative-chest X-ray suggestive-chest symptom (s) means that no tubercle bacilli were found in the sputum smear, but the chest X-ray suggested tuberculosis and the person also has one or more of the following chest symptoms:

- Cough for two weeks or more;
- Chest pain for two weeks or more;
- Fever for two weeks or more;
- Blood in the sputum (haemoptysis).

Action: Start the patient on TB treatment. (Six months Standard Treatment Regime may be sufficient).

Category 4: Sputum Smear Negative-Chest X-ray Suggestive-No Chest Symptoms

Sputum smear negative-chest X-ray suggestive-no chest symptoms means that no tubercle bacilli were found in the sputum smear and the person does not have any chest symptoms. However, the chest X-ray suggested tuberculosis.

(If you are in doubt whether a Chest X-Ray is suggestive or not for Tuberculosis, please consult the TB Programme clinical consultant).

This patient is not infective at the moment, but can become infective in a few days or weeks.

Action: No treatment for TB needed at this time. Ask the patient to come back to the BHU if "Chest Symptoms" develop. Clearly explain what "Chest Symptoms" are. This procedure is called keeping the patient under OBSERVATION. These patients can be checked by sputum smear, culture or chest X-ray depending on the advice of the MO of the BHU.

The four categories of patients and the proper treatment of each are discussed in Table 5. The essential drugs used to treat tuberculosis which are specified on Table 5 are identified in Table 6. A description of essential drugs for tuberculosis treatment is contained in Table 7.

3.2 Definition of Cured Pulmonary Tuberculosis

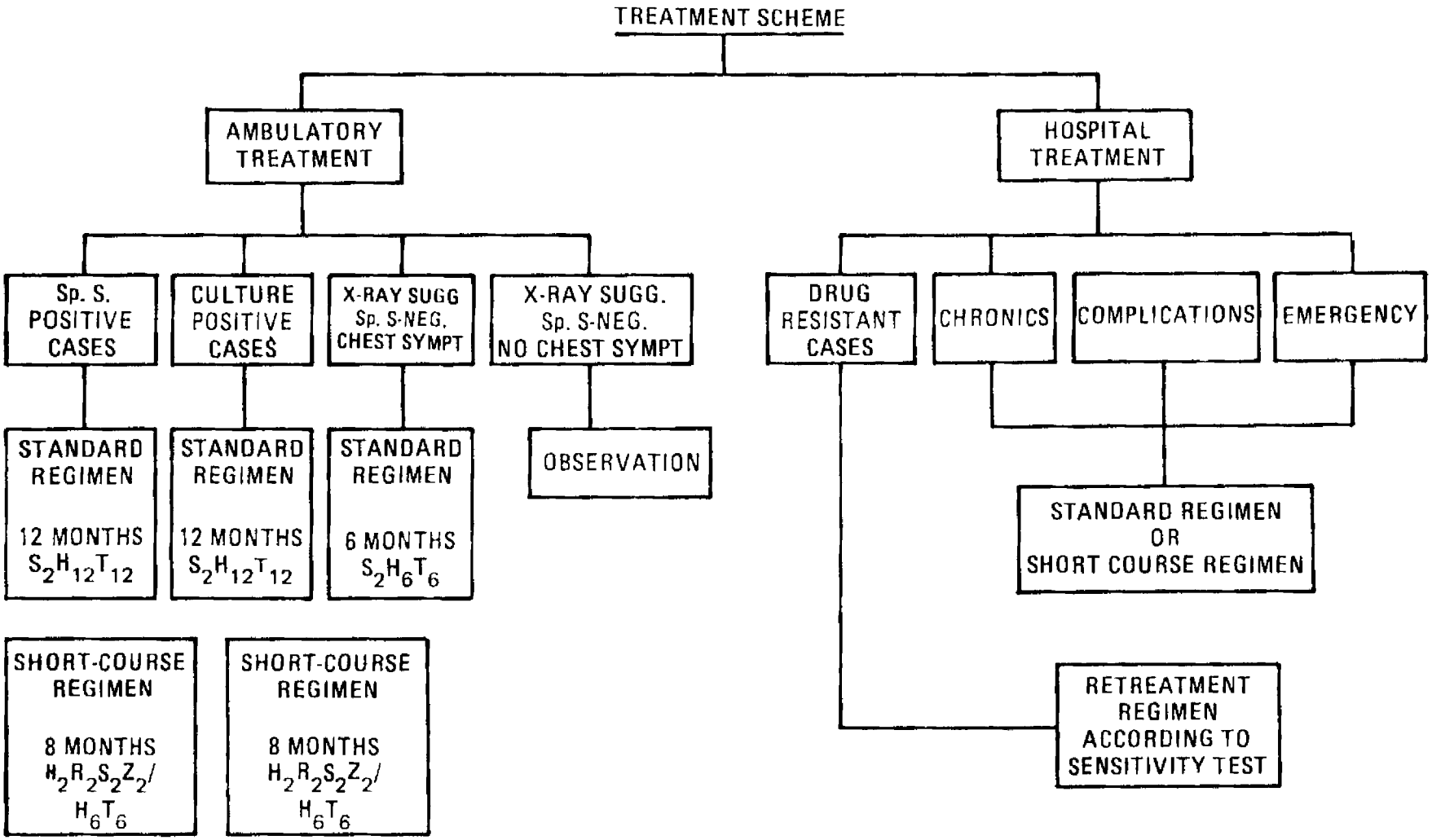
A person with positive sputum smears is cured if the sputum smears are continuously negative during the last six months of the Standard Treatment Regime.

A symptomatic patient who can no longer produce sputum for examination is considered cured when a regular course of treatment is completed. Respiratory symptoms, in a patient whose sputum smears have been continuously negative for the last six months of treatment, are not related to the activity of tuberculosis (the TB treatment should be stopped and a symptomatic treatment given).

A person with negative sputum smears but whose

Table 5

TREATMENT SCHEME FOR CATEGORIES OF PATIENTS WITH TUBERCULOSIS



Sp. S. = Sputum Smear

chest X-ray is suggestive of tuberculosis is cured when six months of the Standard Treatment Regime are completed.

A person with negative sputum smears should be followed-up with sputum tests at the third and sixth month of TB treatment.

3.3 Tuberculosis in Children

The five groups of children described in the case-finding manual must receive twelve months of the Standard Treatment Regime.

3.4 Extrapulmonary Tuberculosis

Those patients with extrapulmonary tuberculosis should receive twelve months of the Standard Treatment Regime.

Eighteen months of the Standard Treatment Regime is advised for those patients with tuberculosis of the bones and major joints.

3.5 There are two places where patients may be treated: ambulatory treatment at the BHU, and in the hospital.

3.5.1 Ambulatory Treatment

In ambulatory treatment, persons with tuberculosis come to the BHU with their TB Appointment Card (Form AR/6). They will be given anti-tuberculosis drugs at the BHU where their Treatment Card (Form AR/5) is filed. Anti-tuberculosis drugs are given according to either the Standard Treatment Regime or the Short Course Regime.

- **Standard Treatment Regime**

  The patient will be asked to come and collect his drugs every two weeks. The duration of treatment is 12 months. The treatment will be self-administered.

- **Short Course Regime**

  The short course regime has two phases.

  In Phase 1, the patient must come every day to the BHU to receive a streptomycin injection and to swallow the prescribed tablets under the treatment organizer's direct control. This supervised treatment lasts for the first two months. During Phase 2, the patient comes to the BHU every week to obtain anti-tuberculosis drugs. These drugs are self-administered. Daily supervision can be done at the patient's home. A Community Health Worker or a Lady Health Visitor can visit the patient's home and the patient will swallow in front of him/her the complete daily treatment.

3.5.2 Hospital Treatment

Hospital treatment for tuberculosis is restricted to the following patients:

- Those who have chronic TB, who have positive sputum smears for TB bacilli for more than two years.

- Those with other acute or chronic diseases, for example, diabetes, liver disease, kidney diseases, etc.

- Those who need emergency care such as those who have serious quantities of blood in the sputum

(haemoptysis), spontaneous pneumothorax, etc.

The MO will decide if a patient is to be referred to the hospital.

Table 6

Essential Drugs Against Tuberculosis

Recommended dosages (mg)

Drug	Abbreviation	Daily Mg/kg	Daily Maximum
Isoniazid	H	8 (1)	300
Rifampicin	R	10	600
Pyrazinamide	Z	30	2000
Streptomycin	S	15	1000
Ethambutol	E	25 (2)	1200
Thioacetazone	T	2.5	150

(1) 10 in children.
(2) 15 after two months.

3.6 Basic Principles for Effective Treatment

The aim of treatment is to obtain the patient's complete cure. To achieve this, treatment must be:

REGULAR: The prescribed drugs are taken daily in one dose following the prescribed dosage.
COMPLETE: Drugs are used without interruptions for the prescribed length of time.

Patients must be reminded by BHU staff members to continue with Regular and Complete Treatment, even though they may start to feel better after some months of treatment. Irregular and incomplete treatment will result in FAILURE or RELAPSE of the disease.

Table 7

Dosage and Administration of Essential Drugs for Treatment of Tuberculosis

	Adults	Children	Remarks
Streptomycin 1 g or Streptomycin 750 mg	One vial/day	Half vial/day max. 40 mg/kg	Salt dissolved just before injection
Insoniazid 100 mg + Thioacetazone 50 mg	Three tabs/day	According to weight	Ill children need more INH (15-20 mg/kg) supplied by INH tab (100 mg)
Isoniazid 100 mg + Ethambutol 300 mg	Three tabs/day	Not recommend-ed	In heavy patients in the first two months of standard regime add to the tab of this association or tab of Ethambutol 400 mg
Rifampicin 150 mg	Three tabs/day	Not advised	This dosage will reduce side effects
Ethambutol 400 mg	Three tabs/day	Not recommend-ed	To be used only in re-treatment with association HR (Phase "B")
Pyrazinamide 500 mg	Three or four tabs according to weight	Not recommend-ed	To be used only in the first two months of short course or re-treatment always with association HR

3.7 Factors Influencing the Response to Treatment

Unimportant	
	Rest
	Accommodation
	Diet
	Nursing
	Climate
	Sanatorium
	Psychological factors

Relatively unimportant	Severity of disease
Important	Adequate chemotherapy Regular drug intake

(Toman, 1979, p. 82)

3.8 Patient Education

Patient motivation and education should be a regular part of each contact with a patient. The BHU staff members should:

Encourage regular patients to continue treatment even though they may feel better after some months of treatment.

Gain the active participation and understanding of the patient and his or her family members from the very first consultation.

Keep patients' active participation by individual or group discussions during distribution activity. This includes explaining the importance of regular attendance, listening to patients' problems with minor side effects and encouraging regular attendance.

3.9 Patients Who Default on Treatment

A patient is considered a Defaulter when he or she has failed to keep the drug collection appointment two weeks after the due date. If this happens:

- The patient's Treatment Card (AR Form No. 5) is placed in the Defaulter File.

- A message must be sent or a home visit made to encourage the patient to return for treatment.

Information about the patient may be sent to the Village Administrator or Group Leader. The CHW may perform this home visit.

The reason for the default should be discussed with the patient and family and corrected if possible.

Patients who default for more than six months should be discharged from the treatment file as "Lost".

3.10 Follow-up of Patients Being Treated

Each patient having pulmonary tuberculosis (or extra-pulmonary tuberculosis with chest symptoms) must have three sputum smears checked at the 3rd, 6th, 9th, and 12th month, from the date treatment started. The patient receiving the Short Course Regime also must be checked at the end of the treatment (8th month).

For a "patient who does not expectorate" anymore, a clearing cough may be obtained by tickling the throat with a laryngeal swab or ask the person to bring three early morning sputum specimens (collected at home) to the BHU.

3.11 Assessing Treatment Results

The first indication of failure of treatment in those persons who have pulmonary tuberculosis and who have had a positive sputum smear is a positive sputum smear:

At the third month from the start of treatment for those receiving the short course regime.

At the sixth month from the start of treatment for those receiving the standard treatment regime.

3.12 Treatment Failure

The main reason for TREATMENT FAILURE is not drug resistance but irregularity in drug intake.

Action: When, during follow-up of the treatment. the sputum smear continues to be positive, a DAILY SUPERVISED TREATMENT is mandatory. Only if the treatment is supervised daily, is it appropriate to request drug sensitivity tests.

3.13 Suspected Drug Resistance in Patients with Positive Sputum Smears

Some patients who are receiving drug therapy for tuberculosis will continue to have positive sputum smears. These patients may be suspected of having TB which is resistant to the drug. The Medical Officer should consult with the program clinical consultant for advice concerning treatment of these people.

3.14 Drug Intolerance or Toxicity

General Principle: Proper daily dosage of drugs reduces the occurence of toxic effects,

Action: Avoid "heavy dose" of drugs in underweight subjects.

Minor Side Effects

Drug Involved	Minor Side Effects
Thioacetazone (T)	Anorexia (T) Nausea (T) Headache (T)
Pyrazinamide (Z)	Vertigo (T)