

MANAGING TUBERCULOSIS AT DISTRICT LEVEL

B1

A training course

INTRODUCTION



Tuberculosis Programme
World Health Organization
1994

8-month

**INTRODUCTION TO
MANAGING TUBERCULOSIS AT THE DISTRICT LEVEL**

*Short Course Chemotherapy
Continuation Phase Plan B*

TABLE OF CONTENTS

EXTENT OF THE TUBERCULOSIS PROBLEM	1
AIM OF A NATIONAL TUBERCULOSIS PROGRAMME	2
STRUCTURE OF A NATIONAL TUBERCULOSIS PROGRAMME	4
PURPOSE OF THIS TRAINING COURSE	8
Who This Course is Designed for	8
Skills This Course is Designed to Teach	8
ORGANISATION OF THE COURSE	10
How This Course May Differ from Other Courses	10
Practices	12
Exercises	12
The Role of a Facilitator	13
Course Materials to be Used	13
DEFINITION OF TERMS	17

INTRODUCTION

EXTENT OF THE TUBERCULOSIS PROBLEM

Tuberculosis is an infectious disease caused by a species of *Mycobacterium* members of the "tuberculosis complex". It is estimated that 3 million people die from tuberculosis each year - the majority of them in developing countries. The annual incidence of new cases of all forms of tuberculosis (pulmonary and extra-pulmonary) worldwide is estimated to be approximately 8 million, of whom about 95% occur in developing countries. The majority of tuberculosis cases in developing countries remain undiscovered, and from the discovered smear-positive cases, less than half of the patients remain uncured. Consequently, the estimated prevalence (the total number of tuberculosis cases at a given time) worldwide is 16 to 20 million, of whom about 8 to 10 million are smear-positive and highly infectious.

The number of persons infected with the bacillus of tuberculosis is 1.7 billion. 1.3 billion of these infected persons occur in developing countries.

The greatest burden of tuberculosis incidence and mortality in developing countries is concentrated in adults aged 15 to 60 years. These are the parents, workers, and leaders of society.

While there has been a tremendous *decrease* of tuberculosis cases in *developed* countries in the last forty years, there has been an *increase* of the number of tuberculosis cases in *developing* countries. This is due to the failure to cure a high proportion of smear-positive cases. In many developing countries, the reasons for the inefficiency of the programme are as follows:

- There is a poor cure rate (30 to 50%).
 - Every year, each uncured (smear-positive) patient infects approximately ten persons. Because uncured patients have been living longer, they increase the pool of sources of infection and more people are infected with the disease.
 - Many uncured patients have become resistant to the drugs they have taken, in particular, to isoniazid or isoniazid and streptomycin. When these uncured patients infect other people, these people will be infected with resistant bacilli.

- Only 50% of the patients on the 12-month regimen convert from positive to negative during the first 2 months of treatment, provided that administration of chemotherapy is closely supervised.
- Many patients who do not have closely supervised treatment stop taking drugs after 2 months because they "feel better". They are likely to become smear-positive failure cases.

During this course, you will learn how to prevent the production of failures of treatment by improving patient and programme management.

AIM OF A NATIONAL TUBERCULOSIS PROGRAMME

In developing countries, the fight against tuberculosis can be successfully conducted only within the setting of a National Tuberculosis Programme. This programme should be part of the country's general health service.

The primary aim, or objective, of a developing country's National Tuberculosis Programme is to **achieve a high cure rate of new smear-positive patients**. The target cure rate is at least **85%**.

TARGET: CURE AT LEAST 85% OF NEW SMEAR-POSITIVE PATIENTS

To achieve at least an 85% cure rate in new smear-positive patients, a National Tuberculosis Programme must:

- (1) *Introduce short-course chemotherapy in place of 12-month chemotherapy in New smear-positive cases.*

The 12-month regimen (12 months of isoniazid and thioacetazone, including 2 months of streptomycin) gave good results, providing that the administration of drugs was strictly supervised, as by a long hospitalisation. However, in developing countries, there is no infrastructure to provide supervision for a long period of time.

Short-course chemotherapy is more cost-effective than 12-month chemotherapy. With short-course chemotherapy it is easier to:

- prevent drug resistance, particularly when combined tablets (isoniazid/rifampicin) are used,
- keep patients on the prescribed treatment regimen, and
- reduce the number of patients who are on treatment.

- (2) *Have close to 100% of New smear-positive patients strictly follow the treatment during the intensive phase (usually 2 months).*

If 100% of the New smear-positive patients strictly follow the prescribed treatment regimens, the number of bacilli in the patients will be reduced and drug resistance will be avoided. More than 80% of the patients will convert from smear-positive to smear-negative in the first 2 months of treatment. The rest of the patients will convert within 3 months.

- (3) *Improve management of the treatment system.*

Some key components for an **improved management system** are:

- well-trained and motivated staff
- maintaining regular anti-tuberculosis drug supplies at treatment centres
- analysis of treatment outcomes of all smear-positive patients at treatment centres to (1) help health workers see how well or poorly they are implementing treatment activities and (2) help the National Tuberculosis Programme identify areas that require attention.

Another objective for a developing country's National Tuberculosis Programme is to expand case-finding coverage and to detect more cases in the earlier, less infectious stages. The expansion of case detection should only be carried out if the cure rate of already detected patients is high. When this occurs, health facilities will attract more patients due to the good results of the cases already treated.

Expanding case-finding can be done by fully utilising the available health services, at least down to the district hospital level. The target is to achieve **70% detection of existing sputum smear-positive cases in countries with a reasonably good health services structure.**

Remember: Increase the cure rate before expanding case-finding.

STRUCTURE OF A NATIONAL TUBERCULOSIS PROGRAMME

To be effective, a National Tuberculosis Programme needs a managerial and supervisory staff.

A model programme, which is discussed in this course, will have four different levels of staff: the central unit, regional level, district level and health units. The organisation of National Tuberculosis Programmes might vary, to an extent, from country to country.

Central Unit

At this level is the *Ministry of Health*, where a Central Tuberculosis Unit is responsible for tuberculosis control in the whole country. A director (Senior Medical Officer or Coordinator) is in charge of the entire tuberculosis programme.

Main responsibilities at the central unit include:

- to plan, supervise, monitor, and evaluate anti-tuberculosis activities throughout the **country**
- to coordinate the National Tuberculosis Programme at the intermediate level and with other sections of the Ministry of Health
- to provide drugs, laboratory equipment and documents needed in the **country**
- to train the personnel involved in the National Tuberculosis Programme.

Regional

At this level, a *Regional Tuberculosis Coordinator* is responsible for carrying out the National Tuberculosis Programme in the province. He is responsible administratively to a Regional Medical Officer and technically follows instructions of the Central Tuberculosis Unit of the Ministry of Health. There is a full-time or part-time Regional Tuberculosis Coordinator for each region.

Main responsibilities at the regional level include:

- to work closely with the Central Tuberculosis Unit in the performance of duties mentioned above
- to plan, supervise, monitor, and evaluate anti-tuberculosis activities throughout the **region**

- to ensure adequate supply of drugs, laboratory equipment and documents needed in the **region**
- to organise training programmes in the region in collaboration with the Central Tuberculosis Unit and the District Chief Medical Officers, and to give on-the-job training to district and peripheral workers
- to ensure that the requested reports on case finding and results of treatment are completed in each district and sent to the Regional Tuberculosis Coordinator
- to review the reports on case finding and results of treatment from the districts and send them to the Central Tuberculosis Unit for computerisation
- to ensure close cooperation between the staff in case finding and treatment of tuberculosis, and the microscopy services.

District

The district is the key level for the management of primary health care. It is the most peripheral unit of local government and administration that has comprehensive powers and responsibilities. At this level, a *District Tuberculosis Coordinator* is responsible to the District Medical Officer and is supervised by the Regional Tuberculosis Coordinator. For each district, there is a full-time or part-time District Tuberculosis Coordinator.

Main responsibilities at the district level include:

- to implement the National Tuberculosis Programme through the staff of district health workers
- to supervise and ensure proper treatment of tuberculosis throughout the district, and particularly ensure that:
 - the correct regimens for chemotherapy are prescribed in any health facility
 - patients are receiving the proper drugs under close supervision by health workers during the intensive phase of treatment
 - patients are taking and collecting their drugs during the intensive and continuation phases of treatment

- regimens are given for the required period, and cured patients are discharged from treatment
 - sputum is examined for tubercle bacilli at the required time periods
 - patients are individually advised about their disease
 - patients are referred to the District Chief Medical Officer, Regional Tuberculosis Coordinator, or referral unit for possible retreatment following failure of chemotherapy
 - treatment outcomes of patients are determined and recorded in the District Tuberculosis Register.
-
- to assist health workers in case finding in all health facilities in the district
 - to keep up-dated and accurate District Tuberculosis Registers
 - to visit the microscopy laboratory in the district once every 1 to 2 weeks, and microscopy laboratories in chest clinics once every 4 to 6 weeks
 - to complete quarterly reports on notified New cases and Relapses of tuberculosis and on the results of treatment
 - to make sure health workers properly identify suspect patients, collect and transport sputum specimens, and refer patients for diagnosis
 - to maintain a regular supply of drugs, treatment-related materials, sputum containers and slides, lab-related materials, forms and registers for the district
 - to monitor the maintenance of the Tuberculosis Laboratory Register and the documentation related to microscopy examinations
 - to visit all health facilities in the periphery once every 6 to 12 weeks and visit the hospitals and health centres once a month.

Health Units

At this level are the *rural hospitals, mission and other hospitals, health centres, dispensaries, and health posts* within a district.

Main responsibilities at the health units include:

- to send tuberculous suspects or their sputum specimens to microscopy laboratories for examination
- to carry out treatment services, including:
 - administering drugs to patients (usually in the continuation phase)
 - providing health education to patients on a regular basis.
- to trace patients who do not collect their drugs after a certain period of time
- to keep Tuberculosis Treatment Cards and records and make them available for the District Tuberculosis Coordinator when he visits the health unit
- to facilitate sputum follow up examinations
- to trace and investigate contacts
- to discharge patients who have come to the end of their treatment regimen in cooperation with the District Tuberculosis Coordinator.

PURPOSE OF THIS TRAINING COURSE

Who This Course is Designed for

To achieve an 85% cure rate and a 70% detection rate, a National Tuberculosis Programme needs the central, regional, and district levels to each do its part. Since so many tasks of the District Tuberculosis Coordinator directly impact achieving this goal, this course has been designed for those workers at the **district level**.

Skills This Course is Designed to Teach

This course provides information and skills needed to perform the many different tasks of a District Tuberculosis Coordinator's job. For example, one important task of a District Tuberculosis Coordinator is registering patients in the District Tuberculosis Register.

At the end of this course, participants will be able to do the following tasks:

- complete patient Tuberculosis Treatment Cards
- ensure the proper administration of drugs during the intensive phase of treatment
- monitor drug collection during the intensive phase (if self-administered) and continuation phase of treatment
- provide health education to patients and train health workers to do the same
- register patients in the District Tuberculosis Register
- verify that patients' sputum specimens have been examined at the correct intervals and record the results in the District Tuberculosis Register
- review patient Tuberculosis Treatment Cards to identify treatment outcomes and record the treatment outcomes in the District Tuberculosis Register
- complete the quarterly reports on case-finding and treatment outcomes
- train health workers to properly identify suspect patients of tuberculosis
- train health workers to properly collect and transport sputum specimens and refer suspect patients for microscopy examination
- maintain an adequate supply of drugs and other materials for the district

- monitor the maintenance of the Tuberculosis Laboratory Register
- monitor the documentation related to microscopy examinations
- conduct supervisory visits to the health units.

ORGANISATION OF THE COURSE

How This Course May Differ from Other Courses

This course may differ from other training courses you have taken in that the material will not be presented to you by lecture. Instead, you will be given a set of instructional booklets called **MODULES**, which serve as the main resource for this course.* They contain basic information and include exercises for you to complete. This method of training will allow you to actually practice important skills, and to see right away what you are learning. As a result, you will learn the skills more quickly, and remember them better.

Each module in the course is designed to help you learn skills necessary to do a particular task, such as monitor treatment outcomes. There are **9 main modules** of instruction; each one is based on a **major task** that makes up a District Tuberculosis Coordinator's job. These major tasks are:

Administering treatment

Registering cases

Ensuring identification of tuberculosis suspects

Monitoring treatment outcomes

Completing quarterly reports on New cases and Relapses of tuberculosis

Completing quarterly reports on treatment results of pulmonary patients

Maintaining regular drug supplies and other materials

Supporting laboratory services

Conducting supervisory visits

***NOTE:** There is also a workbook, *The District Tuberculosis Register Workbook*, which is used during the exercises of several of the modules.

Within each module booklet you will find **sections** (chapters). All sections within a module describe the individual activities that make up the **major task**. For example, one major task that a District Tuberculosis Coordinator performs is monitoring treatment outcomes. What sort of activities make up this task? There are two activities:

(1) monitoring regularity of sputum examinations, and (2) identifying and recording treatment outcomes (for example, cured, treatment completed). Therefore, that module will have two sections that teach a District Tuberculosis Coordinator how to perform the major task of monitoring treatment outcomes.

You will begin each module by participating in an introduction led by the facilitator (instructor). This introduction will provide you with a brief overview of what you will learn in the module. You will then complete the sections within the module at your own pace. The information, examples and exercises in each module will help you to learn each major task.

You are encouraged to discuss any problems or questions with a facilitator, and to take completed practices and exercises to him* promptly. The facilitator will comment on your work and give you any suggestions for improvement.

You will end each module by participating in a module summarisation led by the facilitator. During this discussion you will review what you have learned in the module. The facilitator will also answer any questions you may have.

***NOTE:** Throughout this course, the masculine pronoun (for example, he) will be used in place of both masculine and feminine pronouns (for example, he and she) to make it easier to read.

Practices

Some modules have **practices** that let you practice a skill, or part of a skill. They will be marked as such:



You will usually see practices in modules that explain a more difficult task. After you complete a practice, a facilitator will give you comments on your work.

Exercises

All modules have *individual* and/or *group* **exercises** that are designed to check if you have learned the skills that were taught. After you complete an exercise, a facilitator will give you comments on your work.

There are two types of **individual exercises**. You will complete a form, register, or report based on certain information for one type of exercise. You will answer questions based on given information for another type of exercise.

Before each **individual exercise**, you will see a picture like this:



For the **group exercises**, you will be asked to work with other participants to discuss answers to a given situation or to participate in a role play. A facilitator will lead the small group discussions and observe and comment on each role play.

Before each **group exercise**, you will see a picture like this:



The Role of a Facilitator

A facilitator is a person who will help you learn the skills presented in the course materials. He will:

- introduce each module
- answer questions whenever they arise, or find the appropriate answer
- discuss information which you find confusing to make it clear
- give you comments on your work and see what needs to be clarified
- lead group discussions.

A facilitator is one of several sources of instruction; other sources include modules and other participants in the course. Skills, knowledge, or experiences in the subject being taught help a facilitator to better explain ideas, lead discussions, and provide any help you need to complete the course.

Course Materials to be Used

As mentioned earlier, this course consists of 9 modules of instruction. Each module represents a major task of a District Tuberculosis Coordinator's job. Within each module there are sections that describe what a District Tuberculosis Coordinator needs to learn in order to complete the task.

The following is a list of the modules and sections within those modules:

- **AT - Administering Treatment**
 - AT Introduction to Administering Treatment
 - AT-1 Complete Tuberculosis Treatment Cards
 - AT-2 Communicate with Patients
 - AT-3 Monitor Drug Administration
 - AT-4 Monitor Drug Collection

- **RC - Registering Cases**
 - RC Introduction to Registering Cases
 - RC-1 Register Patients in the District Tuberculosis Register
 - RC-2 Verify that Patients are in the District Tuberculosis Register

■ **TS - Ensuring Identification of Tuberculosis Suspects**

- TS Introduction to Ensuring Identification of Tuberculosis Suspects
- TS-1 Assess Tuberculosis Suspects
- TS-2 Refer Tuberculosis Suspects

■ **MT - Monitoring Treatment**

- MT Introduction to Monitoring Treatment
- MT-1 Monitor Regularity of Sputum Examinations
- MT-2 Identify and Record Treatment Outcomes

■ **QC - Quarterly Reporting on Case Finding**

- QC Introduction to Quarterly Reporting on Case Finding
- QC-1 Complete The Quarterly Report on New Cases and Relapses of Tuberculosis
- QC-2 Analyse The Quarterly Report on New Cases and Relapses of Tuberculosis (*FOR REGIONAL TUBERCULOSIS COORDINATORS ONLY*)

■ **QT - Quarterly Reporting on Treatment Results**

- QT Introduction to Quarterly Reporting on Treatment Results
- QT-1 Complete The Quarterly Report on Treatment Results of Pulmonary Patients
- QT-2 Analyse The Quarterly Report on Treatment Results (*FOR REGIONAL TUBERCULOSIS COORDINATORS ONLY*)

■ **DS - Maintaining Regular Drug Supplies and Other Materials**

- DS Introduction to Maintaining Regular Drug Supplies and Other Materials
- DS-1 Maintain an Adequate Supply of Drugs
- DS-2 Maintain an Adequate Supply of Materials for Streptomycin Injections
- DS-3 Maintain an Adequate Supply of Sputum Containers and Slides
- DS-4 Maintain an Adequate Supply of Forms and Registers

■ LS - Supporting Laboratory Services

- LS Introduction to Supporting Laboratory Services
- LS-1 Monitor Maintenance of Tuberculosis Laboratory Register
- LS-2 Monitor Documentation Related to Microscopy Examinations
- LS-3 Maintain an Adequate Supply of Reagents and Other Materials
- LS-4 Conduct Visits from the District to Microscopy Laboratories

■ SV - Conducting Supervisory Visits

- SV Introduction to Conducting Supervisory Visits
- SV-1 Conduct Supervisory Visits from the District to Health Units
- SV-2 Conduct Supervisory Visits from the Region to the District (*FOR REGIONAL TUBERCULOSIS COORDINATORS ONLY*)

DEFINITION OF TERMS

Definition of Terms

Adequate anti-tuberculosis chemotherapy

A combination of several anti-tuberculosis drugs which has been shown to be able to kill mycobacteria in the body and cause the patient to become or remain smear (and culture) negative for several years. The intensive phase of WHO recommended regimens lasts 2 months (3 months in retreatment cases) and the continuation phase lasts 2 to 6 months (depending on the type of disease).

BCG

Bacille Calmette-Guerin. A live vaccine against tuberculosis derived from an attenuated strain of *M. bovis* by two French doctors, Calmette and Guerin.

Bacilli

Long, rod-shaped bacteria.

Checklist

A complete list of items that you check during site visits to health units and laboratories.

Cure Rate

For the purposes of the course, the cure rate is defined as the percentage of all registered pulmonary smear-positive patients who have completed treatment and have 2 consecutive sputum smear-negative results at 5 months and end of treatment.

Data

Information organised for analysis or used as a basis for making a decision.

Defaulted

A patient who has not collected drugs for more than 2 months, but became (or remained) smear-negative before he stopped treatment.

District

The district is the most peripheral unit of local government and administration that has comprehensive powers and responsibilities. A typical district has a population of between 100,000 and 300,000 people and covers an area of 5,000 to 50,000 square kilometres. The district is the key level for the management of primary health care.

District Tuberculosis Register

The record book that is used to track of all tuberculosis patients receiving treatment in a district.

Early morning sputum specimen

A sputum specimen that a patient produces in the morning before going to see the health worker.

Essential anti-tuberculosis drugs

The drugs used to treat tuberculosis: isoniazid (H), rifampicin (R), pyrazinamide (Z), ethambutol (E), streptomycin (S), and thioacetazone (T).

Isoniazid

Isoniazid is the most widely used anti-tuberculosis drug. It is given in the dose of 5 mg/kg/day up to 300 mg/day for both adults and children; when given intermittently, the dose is 15 mg/kg up to 750 mg, three times a week. Isoniazid can be used in pregnancy.

Rifampicin

Rifampicin is a very potent, relatively non-toxic drug and is easily administered. The daily dose for adults and children is 10 mg/kg up to 600 mg, and the intermittent dose is the same. Rifampicin is excreted in urine, tears, sweat, and other body fluid and it colours them orange. Rifampicin may be used safely during pregnancy.

Pyrazinamide

Pyrazinamide is most active during the first 2 (3) months of therapy. The daily dose for adults is 20 - 30 mg/kg and for children 30 - 40 mg/kg, to a maximum of 2500 mg. The intermittent dose is 50 - 70 mg/kg for both adults and children, with an upper limit of 3500 mg. Pyrazinamide may be used during pregnancy.

Ethambutol

The primary use of ethambutol is to prevent the emergence of resistance to other drugs. The daily dose in the first 2 months of chemotherapy is 25 mg/kg in adults and 15 mg/kg in children; when the drug is given for more than 2 months, the dose should be reduced to 15 mg/kg/day. For intermittent therapy, the dose is 40 mg/kg. In children who are too young for assessment of visual acuity and red-green colour discrimination (generally under age 6), ethambutol should be used with particular caution and after consideration of possible alternative drugs.

Streptomycin

Streptomycin has a strong effect on the elimination of tubercle bacilli in cavities of the lungs. The daily dose is 15 mg/kg for adults and 20 mg/kg for children, to a maximum of 1000 mg. Adults over age 50 and those weighing less than 50 kg should not receive a dose of more than 750 mg. The intermittent dose is the same. Streptomycin should not be used in pregnancy.

Thioacetazone

Thioacetazone may help prevent the emergence of resistance to other drugs, such as isoniazid. It is inexpensive, but of limited usefulness. It is always given with isoniazid at a dose of 2.5 mg/kg for adults and children, to a maximum of 150 mg. Intermittent doses have not been established. Thioacetazone should not be used in persons known to be (or suspected of being) infected with HIV.

Unacceptably high rates of toxicity have been reported from Asian countries, although no clear racial difference in tolerance has been demonstrated.

Extra-pulmonary Tuberculosis

Tuberculosis of organs other than the lungs and hilar lymph nodes (e.g., tuberculosis of pleura, peripheral lymph nodes, abdomen, genito-urinary tract, kidneys, skin, joint and bones, meninges). For diagnosis, it is required one mycobacterial culture positive specimen from an extra-pulmonary site, or histological and/or clinical evidence consistent with active tuberculosis **and** a decision by a Medical Officer to treat with anti-tuberculosis chemotherapy.

Failure (treatment outcome)

The patient was registered as one of the following: pulmonary smear-positive Category 1, and was smear-positive at 5 months or more; pulmonary smear-positive, was smear-positive at his last sputum smear examination, and stopped treatment for more than 2 months before month 5; pulmonary smear-positive Category 2 (retreatment), and completed treatment, but was still smear-positive at the end of treatment; pulmonary smear-negative, but was smear-positive at his end of 2 month follow-up smear examination.

Failure case (at registration)

See **Other case**

Haemoptysis

Spitting of blood coughed up from the chest (this generally refers to red blood emitted through forced coughing).

HIV infection

Infection caused by the human immunodeficiency virus. The virus is transmitted through sexual intercourse, blood and blood products, and intrauterine or perinatal from mother to child, causing severe immunodeficiency and resulting in opportunistic diseases that often cause death.

Incidence

The number of new cases of a disease in a defined population during a specified period of time (usually one year).

Monitor

To closely observe or check on a routine basis.

Mycobacterium

The name of the Genus to which Mycobacterium tuberculosis and other mycobacteria (for example, M. avium, M. kansasii) belong.

Mycobacterium tuberculosis

The bacterium that causes tuberculosis (often abbreviated as M. tuberculosis). M. bovis, M. africanum, together with M. tuberculosis constitute the M. tuberculosis complex.

New case

A patient who has never had treatment for tuberculosis or has taken anti-tuberculosis drugs for less than 1 month of treatment.

**Other case
(mainly failure cases)**

A newly diagnosed patient who is smear-positive at 5 months or more; a smear-positive patient who has interrupted treatment for more than 2 months before month 5 and is smear-positive; a smear-negative patient on entry who was found to be smear-positive after 2 months of treatment; a seriously ill patient diagnosed with active tuberculosis on a clinical basis only, without the support of chest x-ray and/or sputum examination.

Percentage	A part of a whole expressed in hundredths. (If 50% is the percentage of people that are male, it means that 50 out of 100 are male.)
Preventive chemotherapy	The treatment of persons with a high risk of developing tuberculosis who have no signs or symptoms of clinically or radiologically active tuberculosis, in order to prevent them from developing the disease. The currently used drug for preventive chemotherapy is isoniazid, in a dose of 5 mg/kg/day, given 6 to 12 months.
Pruritus	Spontaneous rash sensation located on the skin or mucous membrane, which is a common functional sign. It is common as an allergic reaction to drugs.
Pulmonary smear-negative tuberculosis	A patient with radiographic abnormalities determined by a Medical Officer to be consistent with active pulmonary tuberculosis, sputum examination was at least 3 times negative, and there is a decision by a Medical Officer to treat with anti-tuberculosis chemotherapy.
Pulmonary smear-positive tuberculosis	A patient with at least 2 sputum examination specimens positive for Acid Fast Bacilli (AFB) by microscopy, or a patient with 1 sputum specimen positive for AFB and radiographic abnormalities determined by a Medical Officer to be consistent with active pulmonary tuberculosis.
Purpura	Extravasation of blood out of the capillaries of skin or mucous membrane. It rarely occurs as an allergic reaction to drugs.

Relapse case	A patient who was previously treated for tuberculosis and considered cured by a Medical Officer but is now smear-positive.
Reserve stock	An extra supply of stock kept at the central, regional and district level to ensure that all patients under treatment in the entire country always receive the prescribed drugs during the treatment.
Short-course chemotherapy	Chemotherapy based on the combination of at least three major drugs (isoniazid, rifampicin and pyrazinamide) given for 2 to 3 months during the initial intensive phase of treatment and followed by a combination of at least 2 drugs given for 2 to 6 months during the continuation phase of treatment.
Smear examination for tubercle bacilli	A laboratory technique for seeing mycobacteria under the microscope.
Spot specimen	A sputum specimen which is collected on the spot when a patient is suspected of having tuberculosis. This specimen is collected under the supervision of a health worker.
Sputum specimen	Material brought out by coughing from the respiratory system and used for bacteriological examinations.
Supervised ambulatory treatment	A patient who takes his drugs during the intensive phase of treatment under supervision at the nearest health unit. (The continuation phase of treatment is nearly always on an out-patient basis.)

Supervised practice	Practice of a task (usually in a real work situation) while a supervisor watches task performance carefully.
Supervision	The process of helping people improve their own work performance.
Supervisory visit	A form of conducting supervision in which a supervisor, such as the District Tuberculosis Coordinator, travels to a health unit for observation and discussion with health unit workers and patients.
Toxicity	Serious disturbances in the human metabolism caused by a certain drug, which may cause irreversible damage or endanger the patient's life, and require immediate medical intervention.
Transfer in	A patient who has been transferred into the district from another district.
Transferred out	A patient who has been transferred to another district.
Treatment after default	A patient who is starting treatment again after interrupting treatment for more than 2 months and has remained or become smear-negative.
Treatment-related supplies	Supplies for treatment of tuberculosis, for example, needles and syringes.
Tubercle bacillus	Term often used to refer to <i>Mycobacterium tuberculosis</i> (or to <i>M. bovis</i> or <i>M. africanum</i>).

Tuberculosis

This is an infectious disease caused by *M. tuberculosis* (or less frequently *M. bovis* or *M. africanum*). It is characterised by the formation of lesions in any tissues of the body, but mainly in the lungs.