



THE UNITED REPUBLIC OF TANZANIA
Ministry of Health, Community
Development, Gender, Elderly and Children

National Tuberculosis and Leprosy Programme

OPERATIONAL MANUAL FOR TUBERCULOSIS CARE AND PREVENTION AT WORKPLACE

Second Edition

JULY 2018





THE UNITED REPUBLIC OF TANZANIA

Ministry of Health, Community Development,
Gender, Elderly and Children

National Tuberculosis and Leprosy Programme

Operational Manual for Tuberculosis Care and prevention at Workplace

Second Edition

JULY 2018

National Tuberculosis and Leprosy Programme
Ministry of Health, Community Development, Gender, Elderly and
Children
University of Dodoma, Faculty of Art and Social Sciences
Building no. 11
PO Box 743,
40478 DODOMA, TANZANIA
Email: www.ntlp@go.tz
www.moh.go.tz/ntlp

Table of Contents

Foreword.....	vii
Acknowledgments.....	ix
Abbreviations.....	xi
Chapter 1. Background.....	1
Chapter 2. Goal and objectives.....	3
Chapter 3. Understanding basic facts about TB.....	4
3.1. Tuberculosis and how it is spread.....	4
3.2 Risk factors contributing to tuberculosis infection and disease.....	5
3.3 How TB disease in the lungs is diagnosed.....	7
3.4 Treatment of TB disease.....	9
3.4.1 Treatment monitoring.....	11
3.4.2 TB drugs side-effects.....	11
3.4.3 Promoting adherence to treatment.....	11
3.5 Drug-resistant TB (DR-TB).....	12
3.6 TB prevention in the workplace.....	13
3.6.1 Administrative control measures.....	13
3.6.2 Environmental control measures.....	16
3.6.3 Personal protective measures.....	16
Chapter 4. Basis for the implementation of TB workplace policy.....	18
4.1 Benefits of a workplace policy.....	18
Chapter 5. Roles and responsibilities of stakeholders.....	20
5.1 National level.....	20
5.2 Regional level.....	21

5.3 District level.....	21
5.4 Workplace level.....	22
5.4.1 Employers.....	22
5.4.2 Employees.....	24
5.4.3 Workers' union/other workers' groups.....	24
5.4.4 Infection prevention and control committee members	24
5.4.5 Civil society organizations/implementing partners	25
Chapter 6. Monitoring and evaluation (M&E).....	27
6.1 Recording patients and reporting treatment results.....	27
6.2 Monitoring and evaluation activities in the workplace.....	27
References.....	29
Annex 1. Quarterly workplace TB screening report form...	32
Annex 2. Guide to implementing TB care and prevention activities in the workplace.....	33
Annex 3. Workplace TB infection control plan.....	34
Annex 4. National TB screening questionnaire.....	37
Annex 5a. Personnel who provided technical input, 2013...	42
Annex 5b. Personnel who provided technical input, 2017...	43

Foreword

Tanzania is among 30 countries that contribute more than 87 percent of the world's tuberculosis (TB) burden; it is designated as a high-burden country by the World Health Organization (WHO). In 2017, the National Tuberculosis and Leprosy Programme (NTLP) notified about 69,819 cases; among these, 28,687 (41 percent) were bacteriological confirmed TB cases, the group most likely to transmit the disease to others, the disease has contributed to more than 8.5 percent mortality among people with HIV/AIDS. (NTLP 2017 Report)

The distribution of TB cases by geographical area shows that the Dar es Salaam region remains the major contributor of TB cases (21 percent of all cases notified). Other major contributors were Mwanza (6%), Mbeya (6%), Dodoma (5%), and Arusha (5%) (NTLP 2017 Report).

Baseline information on TB case detection and management at workplace that was recently collected and analyzed to understand current practices within public and private-sector institutions/industries in Tanzania, revealed that there are limited interventions and knowledge about TB among employees and employers. The rationale lies in the fact that a large portion of the population spends a great deal of time at their places of work. This, coupled with an unfavorable workplace environment, can influence the spread (transmission) of TB. Studies and reports from various sources suggest that transmission of TB at workplaces is three to four times higher than in the community (WHO, 2010). Therefore, this policy guide is an effort to augment TB care and prevention through interventions in the workplace.

The successful implementation of TB at workplace initiatives offers several benefits, including a healthier workforce, reduced medical costs, higher work morale, higher productivity, and enhanced status in the society through credible demonstration of corporate social responsibility and improved image in relation to customers and potential clients. Therefore, workplaces have a responsibility to implement interventions aimed at preventing TB infection to mitigate the negative socioeconomic impact of TB disease.

In line with current WHO recommendations, the Ministry of Health, Community Development, Gender, Elderly, and Children (MoHCDGEC) decided to review and updated this policy guidelines in order to provide new guidance to employers and employees in public, private, and informal sectors in Tanzania on interventions that can reduce the burden of TB at workplaces.

On behalf of MoHCDGEC I invite and request all to participate in ensuring that this manual is fully operationalized.



Dr. Mpoki M. Ulisubisya
Permanent Secretary

Ministry of Health, Community Development, Gender, Elderly, and Children, Tanzania


July 2018

Acknowledgment

This second edition of the TB care and prevention at Workplace Operational Manual was completed after extensive and in-depth technical consultations with partners and stakeholders. I take this opportunity to thank all those who selflessly gave their time to review and comment on various documents we shared with them. Special thanks should go to MoHCDGEC staff, particularly Dr. Leonard Subi, Director of Preventive Services for coordinating the whole process of updating this document. I would also like to appreciate the leadership of the program managers NTLP, Dr. Beatrice Mutayoba and Dr. Liberate Mleoh as well as Dr. Allan Tarimo PPM coordinator in coordinating development of this manual, including contributions from other staff members within the NTLP.

The MoHCDGEC would like to express appreciations to TACAIDS, TUCTA and Trade Unions for their significant contributions toward the development of this operational manual. In particular, I wish to acknowledge with gratitude the valuable inputs provided by Dr. W. Mbawala and E. Mukasa of KNCV, Dr. P. Riwa consultant occupational physician and Dr. G. Ruyange from OSHA in addition to the people who provided notable contributions to this document. Last but not least, I would like to thank all stakeholders for their immense assistances, which were based on their practical field experiences and help to enrich this manual.

Finally, I would also like to extend my sincere thanks to the Global Health Bureau, Office of Health, Infectious Disease and Nutrition (HIDN), US Agency for International Development, financially supports, TB care and prevention at Workplace Operational Manual through Challenge TB under the terms of Agreement No. AID-OAA-A-14-00029. This TB care and prevention at Workplace Operational Manual is made possible by the generous support of the American people through the United States Agency for International Development (USAID).


Prof. Muhammad Bakari Kambi
Chief Medical Officer

Ministry of Health, Community Development, Gender, Elderly, and Children Tanzania (July 2018)

Abbreviations

ACSM	advocacy, communication, and social mobilization
AIDS	acquired immunodeficiency syndrome
AMK	amikacin
BCG	Bacille Calmette-Guérin
C	cycloserine
CHMT	council health management team
CMH	capreomycin
CSO	community-based organization
DOT	directly observed treatment
DOTS	directly observed treatment, short-course
DR-TB	drug-resistant tuberculosis
DTLC	district TB/leprosy coordinator
E	ethambutol
ETO	ethionamide
FLD	first-line drug
H	isoniazid
HIV	human immunodeficiency virus
IEC	information, education, and communication
ILO	International Labour Organization
IPC	infection prevention and control
IP	implementing partner
K	kanamycin
L	levofloxacin
LED	light-emitting diode
M&E	monitoring and evaluation
MDR-TB	multidrug-resistant tuberculosis



MEM	Ministry of Energy and Minerals
MOHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
NGO	Nongovernmental organization
NTLP	National Tuberculosis and Leprosy Programme
OSHA	Occupational Safety and Health Authority
PLHIV	People living with HIV
R	Rifampicin
S	Streptomycin
SLD	Second-line drug
TACAIDS	Tanzania Commission for AIDS
TB	Tuberculosis
TAMICO	Tanzania Mines Energy and Construction Workers' Union
USAID	United States Agency for International Development
WHO	World Health Organization
WCF	Workers' Compensation Fund
XDR-TB	Extensively drug-resistant tuberculosis
Z	Pyrazinamide

Chapter 1

Background

Tuberculosis (TB) is a global epidemic and therefore a global concern. In 2017, there were an estimated 10.0 million new TB cases worldwide, of which 5.8 million (58 percent) were men, 3.2 million (32 percent) were women, and 1.0 million (10 percent) were children. In addition, there were an estimated 1.3 million TB deaths in 2017. The number of TB deaths is unacceptably large given that most are preventable; this is mainly attributable to HIV epidemics, resource constraints, conflict, and instability. Sub-Saharan Africa is burdened with the greatest proportion of new cases per population. About 87 percent of reported new TB cases occur in the 30 high-burden countries, which include Tanzania (WHO Global report, 2018).

TB imposes many costs in the workplace. The disease primarily strikes individuals between the ages of 15 and 64 years—those in their productive prime. In addition to the resultant suffering and loss of income for workers, TB disrupts workflow, reduces productivity, and increases both direct costs, related to care and treatment, and indirect costs, such as the replacement and retraining of workers. Without effective treatment, employees with TB will be out of work for months. Given effective treatment, however, many employees can safely return to work within two to four weeks.

The National Tuberculosis and Leprosy Programme (NTLP) of the Ministry of Health, Community Development, Gender, Elderly, and Children (MOHCDGEC) is currently implementing its fifth national strategic plan (2015–2020) in line with the global End TB Strategy. Among the interventions, TB care and prevention in the workplace is included. In addition, the 2013 TB workplace policy guidelines stipulated in detail the key workplace interventions implemented by both public and private employers and other stakeholders. Despite these initiatives, there has been little information on implementation of TB care and prevention services in the workplace largely due to lack of dissemination of the guidelines.

In response, the MOHCDGEC, in collaboration with the United States Agency for International Development (USAID) through the Challenge TB project, has reviewed the policy guidelines to accommodate new developments in addressing TB care and prevention in the workplace. It is envisaged that the guidelines will be used by employers and employees to enhance prevention, prompt diagnosis, and effective treatment of TB, with the goal of reducing disease transmission among workers and in the communities surrounding workplaces.

This operational manual is designed to provide step-by-step instructions for employers and employees to implement workplace TB care and prevention.

Chapter 2

Goal and objectives

The goal of this manual is to empower employers and employees in all sectors to reduce the burden of TB in the workplace, with the ultimate goal of reducing suffering and death due to TB in Tanzania. The objectives are to:

1. Understand basic facts about TB.
2. Facilitate identification of workplace needs and support required for TB infection prevention and control.
3. Operationalize implementation of TB workplace policies.
4. Facilitate involvement of all stakeholders in the implementation of the national guidelines for TB care and prevention in the workplace.
5. Monitor and evaluate the progress of TB care and prevention in the workplace.

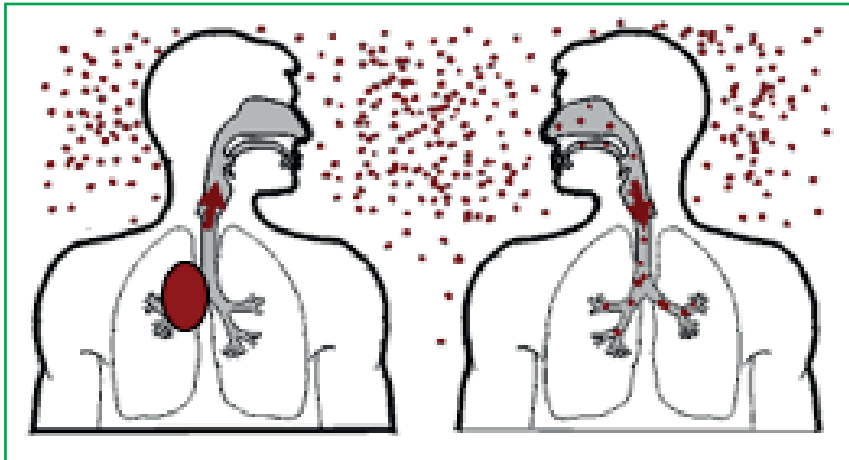
Chapter 3

Understanding basic facts about TB

3.1. Tuberculosis and how it is spread

TB is caused by an organism called *Mycobacterium tuberculosis* (*M. tuberculosis*) and most commonly affects the lungs (pulmonary TB). People who have active pulmonary TB disease can release tiny particles containing *M. tuberculosis* into the air by coughing or sneezing (**Figure 1**). These particles are called droplet nuclei and are invisible to the naked eye. Droplet nuclei can remain airborne in an unventilated room for many hours. Other people can breathe in these droplets, become infected, and, sometimes, develop active TB. In order for TB to spread, there must be a source (a person with TB disease who produces *M. tuberculosis*) as well as an exposed person who inhales droplet nuclei containing the bacteria. Not everyone who is exposed to infectious TB patients becomes infected with TB or develops active TB disease. TB disease develops when the immune system is suppressed, and the bacteria begin to multiply. The chance of developing active TB disease is highest within 1–2 years after infection and steadily lessens with time. The presence of HIV infection increases the risk of progression from infection with *M. tuberculosis* to active TB disease. In general, an individual with TB disease of the lungs or larynx should be considered infectious if the person has not started TB treatment and bacteriologically confirmed.

Figure 1. How TB is transmitted.



3.2 Risk factors contributing to tuberculosis infection and disease

Factors that contribute to an individual acquiring TB infection include:

- Concentration and size of infectious droplets.
- Extent of exposure (length of time the individual is exposed to the infectious droplets).
- Prevalence of TB in the community. The higher the prevalence of TB in the community, the higher the risk of exposure and infection.
- Overcrowding and prolonged stay with an infectious person in a poorly ventilated and lighted environment.

A person with TB infection may remain asymptomatic for a number of years. Table 1. below shows the difference between TB infection and TB disease.

Table 1. The difference between TB infection and TB disease.

TB infection (latent)	TB disease (active)
No active multiplication of bacilli.	Bacilli actively multiply.
No signs and symptoms present.	Signs and symptoms present.
Not infectious.	Infectious when organs involved include lungs, larynx.
Prophylactic treatment is required for higher-risk groups*.	TB treatment is required.
<i>*High risk groups include: all people living with HIV, children aged below five years who are in close contact with a person with infectious TB.</i>	

The risk of progression from infection to active disease depends on the status of the individual’s immune system. Only 10 percent of HIV-negative people infected with TB will eventually develop active disease in their lifetime because their immune system is strong enough to suppress multiplication of bacilli. Their TB infection therefore remains in the “dormant state.” Other groups of people have an increased risk of developing active TB disease following infection. These include the following:

- People with TB/HIV co-infection have an annual risk of 5–10 percent and a lifetime risk 20–30 times higher for developing TB disease.
- People with diabetes mellitus have a 1.5 times higher risk of developing TB disease than people without diabetes mellitus.

Other risk factors for developing TB disease include:

- Malnutrition.
- Recurrent infections of any kind.
- Substance abuse (e.g., alcoholism, drug abuse, etc.).
- Silicosis.

- Smoking.
- Age (very young or elderly).
- Long-term use of steroids and other immunosuppressive therapies.
- Poverty.
- Cancer.

There are two forms of TB:

1. Pulmonary TB primarily affects the lungs and constitutes 60 to 70 percent of total TB cases. It is the most infectious form of TB.
2. Extra-pulmonary TB affects other parts of the body, such as the bones, brain, lymph nodes, or spine, and occurs most commonly among individuals with HIV/AIDS.

TB cases are classified into:

1. Newly diagnosed TB cases: The individual has never had treatment for TB, or has taken anti-TB drugs for less than one month.
2. Previously treated TB cases: The individual has received one month or more of anti-TB drugs in the past.
3. Drug-resistant TB cases: TB disease is caused by the organism's resistance to one or more anti-TB medicines.

3.3 How TB disease in the lungs is diagnosed

Detection of TB cases includes identifying presumptive TB cases and diagnosing TB among the presumptive cases. Identifying presumptive TB cases involves asking people about symptoms of TB. The most important symptoms of pulmonary TB are:

- Persistent cough of two weeks or more.
- Sputum production, particularly if blood-stained.

Additional symptoms may include:

- Loss of appetite and weight loss.
- Excessive night sweats and fever.

As mentioned previously, the parts of the body most commonly affected by *M. tuberculosis* are the lungs. The most cost-effective and widely used method for diagnosing TB of the lungs involves the examination of sputum from a presumptive TB case under a microscope. The sputum is smeared onto a small glass plate, stained with chemicals, and viewed under the microscope. This diagnostic test is referred to as “sputum smear microscopy,” and if *M. tuberculosis* bacilli are seen, the presumptive TB case is said to be “sputum smear-positive.” Though the test is fast and inexpensive, it is not very sensitive, and many cases of TB may be missed. However, molecular test such as Xpert/MTB/RIF which are more sensitive should be used where are available in the country.

Some patients have TB of the lungs that is “sputum smear-negative,” meaning there are not enough bacilli to show up positive on a smear microscopy test. Diagnosis of sputum smear-negative TB requires other methods, such as culture or chest radiography. Chest x-rays may be helpful in revealing features suggestive of pulmonary TB, but are not confirmatory. Several new technologies, such as GeneXpert® and light-emitting diode (LED) microscopy, can be used as a primary diagnostic tool for TB.

Diagnosing TB among identified presumptive TB cases involves referral for a diagnostic test when the test is not available at workplace. The primary diagnostic test to confirm the most infectious form of pulmonary TB is sputum smear microscopy. For sputum smear microscopy, two sputum samples should be collected from the presumptive TB case (one immediately, and the other one the following morning), and results should be available within 24 hours.

These steps should be taken following TB diagnosis:

1. Maintain patient confidentiality at all times.
2. Reassure employees with TB that treatment is effective and free of charge.

3. Immediately notify the case to the local council health management team (CHMT).
4. Employees can return to work once fit enough and no longer infectious (normally after the first two weeks of treatment). Employers should not dismiss employees with TB.
5. Collaborate on case management with the CHMT, for example by arranging directly observed treatment (DOT) in the workplace and monitoring follow-up.
6. CHMT should organize health talks on TB diagnosis, treatment and prevention at workplaces
7. Collaborate with the CHMT on contact-tracing and evaluating the risk of TB transmission in that workplace.
8. Contact the council or regional health authorities regarding laws and regulations in the area.

3.4 Treatment of TB disease

Confirmed TB cases will be classified to ensure that correct treatment is administered. There are three classifications and treatment regimens:

New TB patient

New TB patients are treated for a duration of six months in two phases—a two-month intensive phase and a four-month continuation phase—with the following first-line drug (FLD) regimen:

- First two months: rifampicin (R), isoniazid (H), pyrazinamide (Z), and ethambutol (E).
- Last four months: R and H.

Previously treated TB patient

Previously treated TB patients will receive eight months of treatment with the following FLD drug regimen, when drug resistance is ruled out:

- First two months: R, H, Z, E, and streptomycin (S).
- Next month: R, H, Z, and E.
- Last five months: R, H, and E.

Drug-resistant tuberculosis (DR-TB) patient

DR-TB patients will receive treatment with second-line drugs (SLD) for to 24 months:

- First six to eight months: cycloserine (C), levofloxacin (L), Z, E, ethionamide (ETO), kanamycin (K), capreomycin (CMH), or amikacin (AMK).
- Last 12 months: C, L, Z, E, ETO.

However, the new 9-month shorter DR TB treatment regimen currently being introduced in the country as recommended by WHO:

- First 4-6 months: Kanamycin (K), High dose Moxifloxacin (Mfx), Prothionamide (Pto), Clofazimine (Cfz), Pyrazinamide (Z), High dose Isoniazid (H) and Ethambutol(E).
- Next 5 months: Moxifloxacin (Mfx), Clofazimine (Cfz), Pyrazinamide (Z) and Ethambutol(E).

With standard treatment, TB disease can be cured, even in persons with HIV infection. Untreated TB is fatal in about 30 percent of cases, especially in persons infected with HIV.

3.4.1 Treatment monitoring

Apart from clinical patient monitoring, regular laboratory examination of sputum is scheduled to assess treatment progress (**Table 2.**)

Table 2. Schedule for follow-up sputum smear examination.

New patients	Previously treated patients	DR-TB patients
<ul style="list-style-type: none"> • End of second month • End of fifth month 	<ul style="list-style-type: none"> • End of third month • End of fifth month • End of seventh month 	<ul style="list-style-type: none"> • Every month of treatment <p><i>In addition to sputum for smear, culture and drug sensitivity test should be submitted.</i></p>

Note: DR-TB, drug-resistant tuberculosis.

3.4.2 TB drugs side-effects

Anti-TB drugs may cause tears, urine, and semen to turn into a red color. Patients need reassurance that these side effects are normal. Side effects that require attention include indigestion, nausea, jaundice, rash, and fever, and should be reported to the health staff by patients. A more detailed account of the side effects of anti-TB drugs is contained in the “Manual for the Management of Tuberculosis and Leprosy, Sixth Edition” (NTLP, 2013).

3.4.3 Promoting adherence to treatment

It is well documented that at least 30 percent of all patients receiving self-administered treatment will not adhere to treatment in the first two to three months (the initial phase) of treatment. The consequence for patients of non-adherence to treatment is the risk of treatment failure; the public health consequence is the risk of emergence of drug resistance. DR-TB is costly and difficult to treat.

DOT is a key part of promoting adherence to treatment. It helps to prevent inconsistent, partial, or incorrect treatment, thereby increasing the likelihood of a successful treatment outcome and reducing the risk of emergence of drug resistance. It involves direct observation of patients taking their drugs every day throughout treatment duration. To ensure successful promotion of adherence to treatment, the following should be observed:

- Service and medication should be offered free of charge and have a guaranteed supply.
- DOT in the workplace should be in a private and well-ventilated room to preserve confidentiality and comfort.
- The TB treatment supporter who directly observes treatment must be acceptable to the patient.
- The TB treatment supporter must be well trained and supervised.
- The DOT appointment is organized so as not to disrupt the patient's daily routine.

3.5 Drug-resistant TB (DR-TB)

TB disease caused by organism's resistance to one or more anti-TB medicines. Resistance to both H and R is called multidrug-resistant tuberculosis (MDR-TB).

Resistance can develop due to inadequate prescription of drug treatment or as a result of noncompliance with treatment. Primary resistance occurs when a person is infected by resistant strains from a person with drug-resistant TB. Treating DR-TB takes much longer (18 to 24 months or longer) and requires second-line drugs that have more serious adverse effects and are more expensive. However, new 9-month shorter DR TB treatment regimen is currently being introduced in the country. Resistance to one or more second-line injectable drugs (K, CM, or AMK) and fluoroquinolones on top of MDR-TB is called extensively drug-resistant TB (XDR-TB).

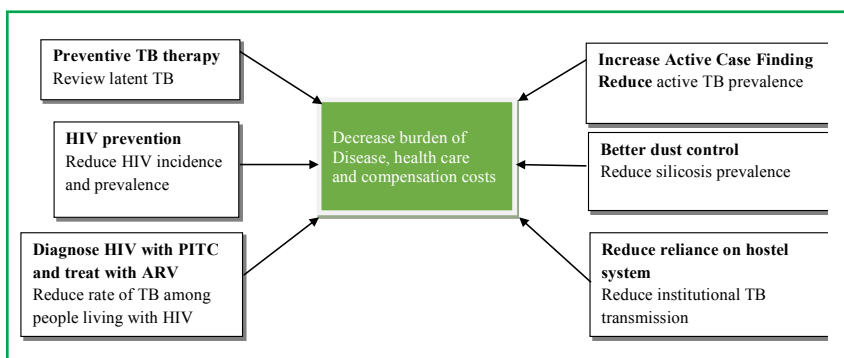
A successful DOTS program is the best way to prevent the development of drug-resistant strains of TB bacilli. The NTLP is implementing a decentralization framework to integrate care and prevention of drug-resistant TB into routine program activities based on WHO guidelines for the programmatic management of drug-resistant TB.

3.6 TB prevention in the workplace

Persons with infectious TB may be found in any workplace setting, and it is likely that they may infect others. However, three types of infection prevention and control (IPC) interventions can significantly reduce this risk: administrative control measures, environmental control measures, and personal protection of the workforce.

Figure 2. below, shows some examples of interventions that can be implemented in the mining industry.

Fig. 2. Interventions to reduce TB incidence in the mining industry



Source: World Health Organization; 2003

3.6.1 Administrative control measures

Administrative control measures have great impact on preventing TB transmission in workplace settings; they are inexpensive to implement and serve as the first line of defense for preventing the spread of TB. Administrative control measures include identification, isolation, and appropriate treatment of persons with confirmed TB disease.

These measures should take priority over all other measures to reduce the transmission of TB in the workplace and should include implementation of the following six components:

1. **Conduct a workplace TB risk assessment.** TB risk assessment is an essential component of TB prevention in workplaces. This includes evaluation of issues such as ventilation, overcrowding, presence of foreign materials such as dust, and availability of sunlight. All employers, in collaboration with their CHMT, should conduct a TB risk assessment at least every six months among all workers and report presumptive TB cases to the CHMT.
2. **Integrate workplace TB care and prevention measures into existing health and safety committees.** Workplace health and safety committees, consisting of multidisciplinary representatives from both the employer and employees, should incorporate TB care and prevention measures as a permanent agenda item in all committee meetings.
3. **Develop an IPC plan.** To prevent exposure to TB, employers, through the health and safety committee, should develop an IPC plan.
4. **Raise TB awareness and conduct training.** IPC is effective when all workers in an organization are knowledgeable about TB care and prevention measures and actively participate in their implementation in order to raise awareness of TB care and prevention. The administration of the workplace should support:
 - Education on TB and promotion of appropriate health care-seeking behaviors for workers at all levels, conducted by the health and safety committee.
 - Integration of a TB agenda into existing social dialogue in the workplace, including peer education to increase knowledge and skills in TB-IPC.
 - Sensitization campaigns with the surrounding community to promote health care-seeking behavior around TB symptoms through provision of advocacy, communication, and social mobilization (ACSM)/information, education, and communication (IEC) materials, including posters, brochures, leaflets, and fact sheets.
 - Educate TB patients on preventive measures in order to prevent transmission to their families and surrounding communities.

5. **Provide workplace TB screening and ensure confidentiality.**
Early identification and prompt treatment of confirmed TB reduces disease transmission to other employees. To achieve this:
 - Employers and all employees should be screened for TB pre-employment, periodically and at exit.
 - Family members of confirmed infectious TB staff should be screened to reduce possible transmission in the community.
 - Information regarding staff diagnosed with TB should be kept confidential, according to national laws and regulations.
6. Effectively manage TB patients within the workplace. Each workplace should have a linkage with a health facility for management and referral of presumptive TB or confirmed TB patients. Every attempt should be made to expedite referral, as further delays in diagnosis and treatment increase the risk of exposing others to TB infection. To ensure that employers and employees with presumptive TB are diagnosed early and those with confirmed TB are initiated on treatment, the following procedures should be followed:
 - Identify available health facilities providing TB services.
 - Establish directly observed therapy, short course (DOTS) centers at workplaces where a health facility is available.
 - Provide support to patients on treatment, including leave of absence for the first two weeks of treatment.
 - Link with public and private health facilities, community-based organizations, and nongovernmental organizations (NGOs) to enhance referral and linkages.

3.6.2 Environmental control measures

Environmental control measures are intended to reduce the concentration of TB bacilli in the surrounding air. This is achieved by enhancing air exchange through natural or mechanical ventilation.

For natural ventilation, employers should ensure that windows are kept open wide in all working areas. Windows and doors on the opposite sides of a room should remain open at all times to ensure cross-ventilation and promote dilution of air to reduce the concentration of infectious droplets.

In mechanical ventilation, employers should ensure that fans are running and in use when windows and doors are open. Also, employers should ensure minimal exposure of employees to foreign dust. The definition of foreign dust differs by industry.

Where possible, employers, particularly in health care settings, should ensure adequate ultraviolet (UV) light and germicidal irradiation at workplaces.

When designing and planning for construction of infrastructure, employers should adhere to TB-IPC measures.

3.6.3 Personal protective measures

Personal protective measures are third in the hierarchy of TB infection prevention and control. The implementation of personal protective measures aims to protect workers from inhaling infectious droplets/nuclei that have been expelled into the air by a patient with infectious TB. The following should be observed when implementing personal protective measures:

1. Personal protective measures should be used in all situations where there is increased risk of transmission, e.g., in health care settings.
2. Employees exposed to foreign dust (e.g., silica) in the work environment should use appropriate respiratory protective equipment, e.g. in the mining, building and construction industries.
3. Cough hygiene (covering the mouth and nose when coughing or sneezing and avoiding spitting) should be observed by all employees to minimize the risk of TB infection at the workplace.

Chapter 4

Basis for the implementation of TB workplace policy

A policy on TB provides the basis for a workplace program to prevent the spread of TB infection and to provide treatment and care. It is usually more effective to plan an integrated response to issues affecting the health, well-being, and performance of employees.

4.1 Benefits of the workplace policy

The workplace policy:

- Makes an explicit commitment to corporate action.
- Ensures consistency with appropriate national laws.
- States a standard of behavior for all employees (whether infected or not).
- Provides guidance to supervisors and managers.
- Enables employees infected and affected with TB to understand what support and care they will receive so they are more likely to come forward for appropriate care, support and treatment.
- Helps to stop the spread of TB.
- Assists an enterprise in planning for TB care and prevention and, ultimately, saves money.

The following principles formed the basis for the workplace policy:

- **Recognition of TB as a workplace issue:** TB is a workplace issue because it affects the health of workers and the productivity of enterprises. The workplace has a role to play in broader national efforts to limit the spread and effects of TB.
- **Nondiscrimination:** In terms of continuing employment relationships or access to health insurance, occupational

safety, and health care schemes, no one should experience discrimination on the basis of their TB status. Employees with TB should be entitled to work for as long as they are medically fit and appropriate work is available. Reasonable measures to accommodate workers with TB should be made through flexible leave arrangements, rescheduling of working times, and arrangements for return to work. Workplace programs should also be gender-sensitive.

- **Confidentiality:** Job applicants or employees should not be asked to disclose information on the basis of their perceived TB or HIV/AIDS status. Access to personal data should be bound by the rules of confidentiality and according to the national code of conduct on the protection of workers' personal data.
- **Healthy work environment:** The work environment should be healthy and safe, as far as practicable, in order to prevent the transmission of TB. This includes the responsibility for employers to provide information and education on TB transmission, appropriate environmental measures, and protective gear where relevant.
- **Care and support:** Workplaces should provide access to health services that fulfil the needs of male and female employees with TB and related illnesses, or should refer workers to treatment and care services in the community.
- **Social dialogue:** Prevention and management of TB in the workplace will be more effective if planned and implemented on the basis of collaboration between managers and the workforce. A workplace health and safety committee with broad representation should be responsible for overseeing implementation.

Chapter 5

Roles and responsibilities of stakeholders

Implementation of TB care and prevention interventions in workplaces is NOT the sole responsibility of the government; it involves a wide range of stakeholders, including NGOs, staff working in both the public and private sectors, health care providers, TB patients, and communities. The involvement of multisectoral stakeholders aims to mobilize and support partnerships to protect workers from becoming infected with TB while at their jobs.

Rollout of the workplace operational manual will take place at the national, regional, district, and workplace levels. The roles and responsibilities of each level are outlined below.

5.1 National level

The government, in collaboration with partners at the national level, will use the existing national platforms, such as technical working groups for TB and HIV/AIDS, to guide implementation of the national guidelines for TB workplace control across the country. The national platform will have the following roles and responsibilities:

- **Coordination:** Provide an enabling environment for workplace TB care and prevention interventions and capitalize on the presence of relevant stakeholders. The coordination will be built on existing systems and services.
- **Capacity-building:** Build capacity of employers and employees to effectively support and participate in workplace TB care and prevention endeavors. The capacity-building will include orientation of employers and employees on policies/guidelines and their roles and responsibilities regarding TB care and prevention at workplace.
- **Technical support:** Provide technical assistance to employers, including in TB risk assessment; strategies for accessing TB treatment, care, and support; provision of information regarding basic TB facts; and reduction of stigma and discrimination.

- **Legislation:** Influence revision of labor laws and other legislation to address the challenges of TB care and prevention at workplaces. These include, Employment and Labour Relations Act. #6, 2014, Occupational Safety and Health Act. #5, 2003, Workers' Compensation Act, 2008, Labour Institutions Act, 2004, the HIV (Prevention and Control) Act. 2008, Public Health Act. 2009, Public Service Act, 2002 and The National Environmental Management Act. 2004.

5.2 Regional level

Regional health management teams and co-opted members (e.g., labor officers/Occupational Safety and Health Authority [OSHA], Worker's Compensation Fund, TACAIDS Coordinators, Trade Unions) will be responsible for:

- Translating workplace TB care and prevention guidelines within the region.
- Distributing operational manuals and ACSM/IEC materials.
- Monitoring workplace TB care and prevention implementation within the region.
- Incorporating workplace TB care and prevention activities into regional health comprehensive plans.
- Sharing information with key implementers of TB care and prevention at the workplace within the region, including providing supportive supervision and annual reports.

5.3 District level

CHMTs will be responsible for:

- Overseeing implementation of national guidelines for TB care and prevention in the workplace.
- Distributing national guidelines and ACSM/IEC materials to workplaces.
- Monitoring implementation of workplace TB care and prevention policy guidelines.

- Participating in workplace IPC committee meetings, together with the co-opted member from the labor office, WCF, TACAIDS, Trade Unions and OSHA.
- Incorporating workplace TB care and prevention activities into council comprehensive health plans.
- Information-sharing among key implementers of workplace TB care and prevention within the district, including provision of supportive supervision and annual reports.
- Supporting employer and employees in the compensation process

5.4 Workplace level

5.4.1 Employers

Employers play an important leadership and advocacy role in promoting and developing workplace health programs. When employers endorse and approve policies regarding preventing and treating TB within their workforce, they are placing a value on workers' health and essentially integrating it into the workplace culture. Employers will have the following roles and responsibilities:

- 1. Implementing TB workplace guidelines:** Employers should involve workers and their representatives in implementing the national guidelines for workplace TB care and prevention. All diagnosed TB cases should be reported to the CHMT.
- 2. Training employees on TB infection prevention and control:** Employers, in collaboration with workers and their representatives, should initiate and support training programs on TB prevention, care, and support. Training should also include benefits and entitlements, including leave of absence, and compensation for staff diagnosed with TB and measures to reduce discrimination against people with TB. Training programs should be incorporated into the annual work plan of the organization.



3. **Conducting risk assessment and management:** Every employer will be required to carry out a risk assessment to identify hazards present in the workplace and act upon them accordingly, as stipulated in the national guidelines.
4. **Implementing procedures/codes of conduct for grievance and disputes resolution:** Employers should have procedures known to workers and their representatives for work-related grievances. The procedures should specify under which circumstances disciplinary proceedings can be initiated for any employee who discriminates a colleague with TB or violates the national guidelines for workplace TB care and prevention.
5. **Raising awareness about TB:** Employers, in collaboration with workplace health committees and workers' representatives, should encourage employees to participate in the prevention of TB through sensitization meetings conducted in the surrounding community—for example, during World TB Day—to enhance early health care-seeking behavior for TB.
6. **Supporting medical examination:** Employers should demand a certificate of fitness from all employees from qualified, authorized medical practitioners before employment, every six months during the term of employment and at exit. This should not be used as a basis for termination or denial of employment. Any employee diagnosed with TB should be supported through treatment, and employment should continue as stipulated in the national guidelines.
7. **Providing care, psychosocial, nutrition, and transport support to employees undergoing TB treatment:** Employers should ensure that all employees or workers diagnosed with TB are provided with good care that includes social, nutrition, and transport support while on treatment.

5.4.2 Employees

Employees are at particular risk of contracting TB in the workplace. The increased risk of contracting TB may be the result of either occupational exposure to special risk factors or employees living in poor health conditions. Hence, workers and their representatives

should be responsible for implementing TB care and prevention activities at workplace. Employees' responsibilities should include the following:

- 1. Reporting:** Employees should report to the health facility or TB infection control focal person with any noted signs and symptoms related to TB and demand prompt action.
- 2. Personal protection:** Employees should use personal protective equipment correctly in accordance with the nature of their duties.
- 3. Adherence:** An employee confirmed to have TB should adhere to prescribed TB treatment and observe infection control measures.
- 4. Cooperation:** Employees should cooperate with their employers to facilitate routine medical examination by qualified, authorized medical personnel.

5.4.3 Workers' union/other workers' groups

Workers' unions and other groups play a vital role in implementation of the national guidelines for TB care and prevention at workplace. Unions should facilitate linkages between employers and employees to ensure that relevant information about TB is properly disseminated and that employee rights and benefits are maintained during the period of TB treatment.

5.4.4 Infection prevention and control committee members

An IPC committee will be established in workplaces with no existing health and safety committee; where a health and safety committee does exist, it should include specific IPC/health and safety committee members. The new committee or new members to the existing committee should include:

- Representative from management (should not exceed the number of workers' representatives).
- Representative from workers (at least one-third of the representatives should be women, if possible).
- One representative from each unit.



- District labor officer/OSHA representative.
- CHMT representative, preferably the district tuberculosis and leprosy coordinator or tuberculosis and HIV officer.

The roles and responsibilities of the IPC/health and safety committee should be as follows:

1. Coordinate with employers and employees on matters related to TB care and prevention at workplace.
2. Develop an organizational TB-IPC plan.
3. Link with a nearby health facility to ensure proper management of identified TB cases.
4. Conduct quarterly meetings to review progress and implementation of the IPC plan.
5. Monitor day-to-day implementation of TB care and prevention at workplace.
6. Link with the CHMT on matters related to TB care and prevention, including training and meetings.

5.4.5 Civil society organizations/implementing partners

CSOs and IPs have a critical role in implementing the TB workplace guidelines. Specifically, they will be tasked to:

1. Collaborate with various institutions to promote awareness and implementation of the TB workplace policy guidelines to employers, employees, and their unions.
2. Solicit funds and other resources for the implementation of the TB workplace policy guidelines.
3. Build the capacity of human resources to implement the TB workplace policy guidelines.
4. Disseminate the workplace policy to institutions and relevant stakeholders.
5. Facilitate linkages between workplaces and the community.

Chapter 6

Monitoring and evaluation (M&E)

Monitoring and evaluation (M&E) by employers implementing TB workplace interventions is an important aspect of measuring progress made toward reducing the burden of TB in the workplace.

6.1 Recording patients and reporting treatment results

Employers who contribute to TB case-finding and treatment should collaborate with their respective DTLC to ensure proper record keeping. The most important forms for employers to be familiar with are the patient identity card (held by the patient) and the TB treatment card (held by the treatment facility DOT provider).

The DOTS information management system is essential to ensure that patients are correctly treated and that an adequate quantity of drugs is provided. Effective TB care and prevention requires a proper recording and reporting system, using standardized definitions and classifications at the beginning and the end of the treatment. Proper record keeping allows early identification and rectification of any problems. The NTLP standard reporting system includes the patient identity card, TB treatment card, drug requisition form, quarterly report on case-finding, and quarterly report on treatment outcomes.

In order to monitor TB care and prevention in the workplace, information of employees or workers screened and diagnosed with TB will be recorded and reported using the standard tools and submitted to the national TB surveillance system on quarterly basis.

6.2 Monitoring and evaluation activities at workplace

M&E activities at workplace include, but are not limited to, the following:

1. Develop an M&E plan and adopt tools from the NTLP to capture information on implementation of the TB care and prevention interventions. An illustrative framework and M&E plan matrix are provided in the annexes as a template from which employers can start to develop their own monitoring framework and tools.

2. Collaborate with other stakeholders, including MOHCDGEC, to routinely monitor and evaluate the implementation status of TB workplace interventions.
3. Conduct joint annual supportive supervision and mentorship visits with the PORALG and other stakeholders, including OSHA, and PMO-LEYD.
4. Train IPC committees at workplaces on the use of national recording and reporting tools.
5. Record and report on TB screening in the workplace according to the M&E framework.
6. Prepare and submit quarterly reports to the CHMT indicating at least the following indicators. Additional indicators to consider are provided in the Illustrative M&E Plan in Annex 1.
 - Number of newly screened workers.
 - Number of new presumptive TB cases.
 - Number of people diagnosed with TB newly registered.
 - Number of people newly initiated on TB treatment.
 - Number of people with TB disease presented with treatment outcomes.
 - Number of people with TB disease with known HIV results.

References

AMCA Inter-Consult Ltd. *Field Assessment Report on Situation of TB Responses at Workplaces in Tanzania; Dar es Salaam, Tanga, Arusha, Dodoma and Mwanza*. 2011.

Burgess AL, Fitzgerald DW, Severe P, et al. Integration of tuberculosis screening at an HIV voluntary counseling and testing centre in Haiti. *AIDS*. 2001;15(14):1875–1879. Available at http://journals.lww.com/aidsonline/Fulltext/2001/09280/Integration_of_tuberculosis_screening_at_an_HIV.18.aspx.

Ministry of Health and Social Welfare Health Policy, 2007.

Ministry of Health and Social Welfare (MOHSW) [Tanzania]. *Guidelines for Tuberculosis Infection Control*. Dar es Salaam: MOHSW; 2010. Available at: http://ntlp.go.tz/index.php?option=com_phocadownload&view=category&id=3:guidelines&Itemid=0

National Tuberculosis and Leprosy Programme (NTLP). *Manual for Management of Tuberculosis and Leprosy*; 6th Ed., 2013. Available at: http://ntlp.go.tz/index.php?option=com_phocadownload&view=category&id=3:guidelines&Itemid=0

NTLP: *Annual report 2015*. Available at: http://ntlp.go.tz/index.php?option=com_phocadownload&view=category&id=3:guidelines&Itemid=0

Tanzania Ministry of Health and Social Welfare (MOHSW). *Joint MOHSW, WHO, Centers for Disease Control (CDC), and KNCV assessment mission on collaborative TB/HIV activities*. 2005.

The United Republic of Tanzania MOHSW. *The first national tuberculosis prevalence survey in the United Republic of Tanzania: Final Report*. Dar es Salaam: MOHSW; 2013. Available at http://ihi.eprints.org/3361/1/PST_final_report_Sept_2013.pdf.

The United Republic of Tanzania MOHSW: Tanzania: *National Occupation health and safety policy*.

The United Republic of Tanzania Ministry of Labour, Employment and Youth Development. *National Employment Policy 2008*. Available at https://www.ilo.org/dyn/youthpol/en/equest.fileutils.dochandle?p_uploaded_file_id=191.

The United Republic of Tanzania Ministry of Labour, Employment and Youth Development. *National Occupational Health and Safety Policy*. 2009. Available at http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/policy/wcms_326526.pdf

The United Republic of Tanzania Ministry of Health and Social Welfare (MOHSW). National policy guidelines for collaborative TB/HIV activities, Fifth Edition. 2015. Available at: http://ntlp.go.tz/index.php?option=com_phocadownload&view=category&id=3:guidelines&Itemid=0

The United Republic of Tanzania Ministry of Health and Social Welfare (MOHSW). National Guideline for the Management of HIV and AIDS. 5th Edition, 2015. Available at: https://aidsfree.usaid.gov/sites/default/files/04_11_2016.tanzania_national_guideline_for_management_hiv_and_aids_may_2015_tagged.pdf.

WHO, ILO. *Guidelines for workplace TB care and prevention activities: the contribution of workplace TB care and prevention activities to TB care and prevention in the community*. Geneva: WHO; 2003. Available at http://www.stoptb.org/assets/documents/resources/publications/technical/workplace_guidelines.pdf.

WHO. *Who policy on collaborative TB/HIV activities: guidelines for national programs and other stakeholders*. Geneva: WHO; 2012. Available at http://apps.who.int/iris/bitstream/10665/44789/1/9789241503006_eng.pdf?ua=1&ua=1.

WHO. *Global Tuberculosis Control: Surveillance, Planning and Financing*. Geneva: WHO; 2008.

WHO. *TB/HIV: a clinical manual*. Geneva: WHO; 2004. Available at http://www.who.int/maternal_child_adolescent/documents/9241546344/en/.

World Health Organization (WHO). *Guidelines for the prevention of tuberculosis in health care facilities in resource-limited settings*. Geneva: WHO; 1999. Available at http://www.who.int/tb/publications/who_tb_99_269/en/.

World Health Organization (WHO). *Global tuberculosis report 2013*. Geneva, Switzerland: WHO; 2013. Available at http://apps.who.int/iris/bitstream/10665/91355/1/9789241564656_eng.pdf.

World Health Organization (WHO) and International Labour Organization (ILO). *Joint WHO/ILO policy guidelines on improving health worker access to prevention, treatment and care services for HIV and TB*. Geneva: WHO; 2010. Available at http://apps.who.int/iris/bitstream/10665/44467/1/9789241500692_eng.pdf.



Annex 2. Quarterly Treatment Outcomes Report Form

Name of workplace: _____

District: _____

Reporting duration: (e.g., 01 Jan–31 March 2017) _____

Reporting Date: (dd/mm/yy) (First week of the following quarter)

Age Category	Total Num-ber of peo-ple reported with TB		Number of people with TB cured		Number of people with TB – completed treatment		Number of people with TB – Lost to follow up		Number of people with TB – Treatment failure		Number of people with TB - Died		Remarks
	M	F	M	F	M	F	M	F	M	F	M	F	
< 15 yrs													
15-24 yrs													
25-34yrs													
35-44yrs													
45-54yrs													
55-64yrs													
≥ 65yrs													
Total by gender													
Total													



Annex 3. Guide to implementing TB care and prevention activities at workplace

This table provides the major steps and specific activities to implement these policy guidelines in the

STEPS	ACTIVITIES	OPPORTUNITIES	TIMELINES	RESPONSIBLE
Gather preparatory information on TB at your workplace.	Review existing occupational health policy to incorporate TB interventions in the workplace to suit the working environment.	Availability of national programs and policy operational manual on TB at workplaces.		
Identify collaborating stakeholders for TB care and prevention.	Identify availability of health facilities providing TB services and technical support. Link with public and private health facilities, community based organizations, and NGOs.	Existence of Public Private Partnership(PPP)model for TB care and prevention in the country		
Advocate and raise awareness.	Conduct awareness-raising sessions for top management. Conduct awareness-raising sessions for workers and their representatives. Establish a forum for social dialogue on TB in the workplace.	Existence of Local government authorities and Trade Unions.		

<p>Assess and build on existing TB services in the workplace.</p> <p>Implement TB care and prevention services</p>	<p>Conduct situation analysis. Fill identified gaps Develop action plan.</p> <p>Conduct TB awareness-raising for workers and surrounding communities. Train peer educators. Screen workers for TB. Provide directly observed therapy (DOT). Establish referral and linkage mechanisms. Ensure drugs and supplies for TB services. Introduce preventive measures for TB. Provide/facilitate HIV counseling and testing and initiate treatment for TB/HIV co- infected workers.</p>	<p>Willingness of enterprises and workers.</p> <p>Presence of TB workplace policy. Presence of wide range of stakeholders. Availability of TB drugs and equipment and supplies for TB diagnosis (depends on the personnel capacity). Availability of DOT centers (health facilities within the catchment area).</p>	
--	---	---	--

<p>Provide capacity-building</p>	<p>Train health and safety committee on roles and responsibilities in the implementation of this policy operational manual.</p>	<p>Existence of health and safety committee.</p>	
<p>Conduct monitoring and evaluation (M&E)</p>	<p>Train labor and health inspectors to monitor TB care and prevention services at workplace. Update labor & health inspector checklist to include TB component. Conduct supportive supervision and mentorship on TB services in the workplace. Documentation of TB information in the workplace. Conduct monitoring and evaluation of TB services in the workplace. Share information and use it for planning and decision-making.</p>	<p>Availability of structure and system for workplace inspections.</p>	

Level of hierarchy in TB infection control measures	Activity/task	Time frame	Responsible person		
		Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul-Sep)	Q4 (Oct-Dec)
1. Administrative control measures	1.1 Establish/integrate TB-IPC issues into the existing health and safety committee.				Chair of health and safety committee (HSC)
	1.2 Identify a TB-IPC focal person at workplace.				Chair of HSC
	1.3. Conduct TB risk assessment to identify requirements for workplace to implement TB infection control.				HSC and DTLC
	1.4. Prompt recognition of workers with presumptive/confirmed TB in the workplace and initiate treatment.				Workplace TB focal person



Annex 4. Workplace TB infection control plan/Framework

	1.5 Conduct staff training on TB-IPC measures.						HSC and DTLC
	1.6 Provide health education to employees.						HSC and DTLC
	1.7 Strengthen referral/linkages and feedback mechanisms between the workplace and health facilities.						Workplace TB focal person
2. Environmental control measures	2.1 Ensure natural ventilation.						Employer
	2.1.1 Open windows.						HSC
	2.1.2 Ensure adequate air flow in the workplace.						Employer
	2.2 Ensure mechanical ventilation (e.g., fan).						Employer
	2.2.1 Ensure availability and functioning of fan.						Employer

3. Personal respiratory protection	3.1 Ensure use of respirator (N95) in high-risk workplaces.			Employer
	3.2 Ensure prompt diagnosis of TB in the workplace.			HSC and DTLC
	3.3 Conduct contact investigation with all index TB cases.			HSC and DTLC
4. Monitoring and evaluation	4.1 Conduct supervision and follow up on the implementation of TB-IPC plans in the workplace.			CHMT
	4.2 Conduct quarterly meetings to appraise implementation of TB-IPC plan at workplace.			HSC and CHMT
	4.3 Keep and provide report on TB cases diagnosed at workplace			TB-IPC focal person and data clerks

Annex 5. National TB screening questionnaire

This standardized national TB screening questionnaire helps identify patients who meet the definition of “presumptive TB” so that appropriate precautions can be taken (e.g., respiratory hygiene, patient’s education, and separation in waiting areas) and s/he can be referred for direct sputum test.

Patient’s name: **Reg. Number:** **Date of birth:** .../...../.....

Sex: Male Female

Physical Address: Area leader/ neighbor: Contact telephone (if available)

Date																				
Tick appropriate response	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Cough for ≥ 2 weeks; Any duration, if living with HIV																				
Coughing up blood-stained sputum (haemoptysis)?																				
Fevers for ≥ 2 weeks?																				
Noticeable weight loss for new patients or a 3-kg weight loss in one month (subsequent visit)?																				
Excessive sweating at night for ≥ 2 weeks?																				

If ‘YES’ to one or more questions, enter the code “TB presum” in the TB status column of the Care and Treatment Clinic-2 form and complete the respective column in the table below.

Date													
Do sputum smear for AFB and enter results (pos or neg); or Xpert MTB/RIF test as a first test if available and enter results													
If sputum negative, do chest x-ray and enter result (suggestive or not suggestive)													
Outcome of assessment (TB or No TB)													

If 'No' to all questions: Do not initiate TB investigations and repeat screening at the subsequent visit. Enter the code "NO" in the TB status column of the CTC2 form.

Annex 5a. Personnel who provided technical input, 2013

1. Dr. Mohammed H. Makame – PATH Tanzania
2. Dr. John E. Lyimo – PATH Tanzania
3. Dr. Zahra H. Mkomwa – PATH Tanzania
4. Mr. Yusuf Bunu – PATH Tanzania
5. Dr. Said Egwaga – MOHCDGEC, NTLP
6. Dr. Allan Tarimo – MOHCDGEC, NTLP
7. Ms. Dorothy Semu – MOHCDGEC, NTLP
8. Ms. Diana Kasembe – MOHCDGEC, NTLP
9. Mr. Didas Kayumba – MOHCDGEC, NTLP
10. Mr. Shunda – MOHCDGEC, NTLP
11. Dr. Samwel J.Sumba – Tanzania Commission for AIDS (TACAIDS)
12. Mr. Joseph Birago – MOHCDGEC, Occupational health
13. Dr. Lilian J.Katunga – OSHA
14. Dr. Zebedayo Sekilasa – MOHCDGEC, National AIDS Control Programme (NACP)
15. Dr. Sylvester Nandi – Management Sciences for Health
16. Mr. Abdallah Mwinchande – AMCA Interconsult
17. Mr. Fredrick P. Ananga – AMCA Interconsult
18. Dr. Erica Malekia – AMCA Interconsult
19. Dr. M. Nyamkara – MOHCDGEC, NTLP

Annex 5b. Personnel who provided technical input, 2017

1. Dr. Leonard Subi MOHCDGEC, NTLP
2. Dr. Beatrice Mutayoba MOHCDGEC, NTLP
3. Dr. Liberate Mleoh MOHCDGEC, NTLP
4. Dr. Allan Tarimo MOHCDGEC, NTLP
5. Dr. Peter Riwa Freelance Occupational Health Consultant
6. Dr. Willy L. Mbawala PATH Challenge TB Project
7. Dr. Esther Mukasa KNCV Tuberculosis Foundation
8. Dr. Berezy Makaranga APHTA
9. Edmund Fabian MDH Kinondoni
10. Gideon Mwangosi Tanzania Occupational Health Services
11. Raymond Shirima Morogoro DC
12. Lena Nkaya MOLEYD
13. Dr. Gwamaka Mwabulambo Temeke MC
14. Curtius Msosa MAREMA
15. Rahel Byabato MUHAS School of Hygiene
16. Dr. Gershom Ruyange OSHA
17. Dr. Meja Kapalata TUCTA
18. Charles J. Mgashi TAMICO
19. Badru R. Abdunuru TACAIDS
20. Cornel Wambura MOHCDGEC – NTLP



Annex 6. Rejesta ya Wanaohisiwa kuwa na Kifua Kikuu



WIZARA YA AFYA, MAENDELEO YA JAMII, JINSIA, WAZEE NA WATOTO

REJESTA YA WANAOHISIWA KUWA NA KIFUA KIKUU (TB)

WILAYA _____
KITUO CHA HUDUMA _____
IDARA/KITENGO _____



National Tuberculosis and Leprosy Programme
Ministry of Health, Community Development, Gender, Elderly and Children

University of Dodoma, Faculty of Art and Social Sciences
Building no. 11

PO Box 743 | 40478 DODOMA, TANZANIA
Email: www.ntlp@go.tz

www.moh.go.tz/ntlp