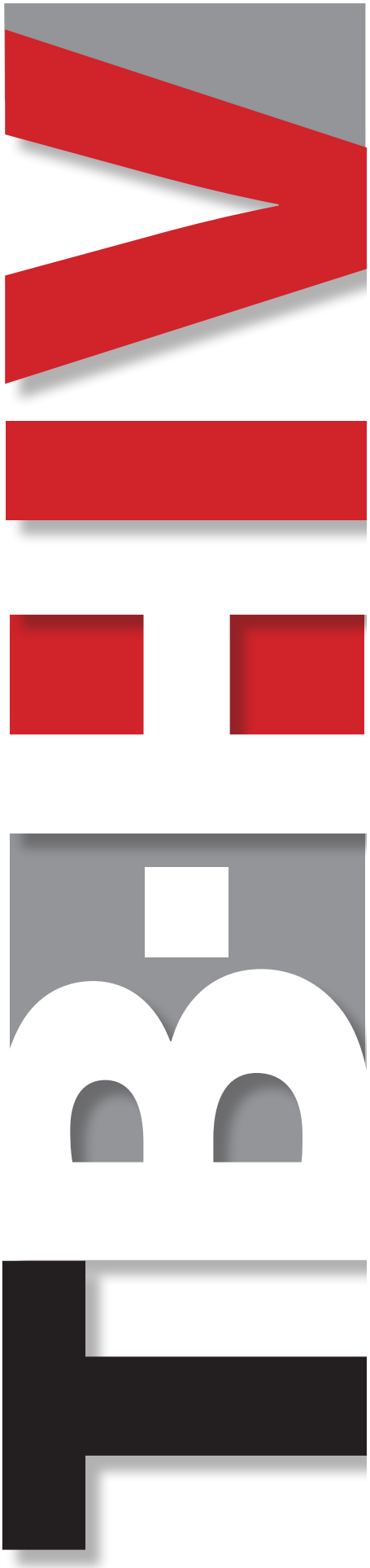
Participant's Manual for IMAI TB Infection Control Training at Health Facilities

INTEGRATED
MANAGEMENT OF
ADOLESCENT AND ADULT
ILLNESS (**IMAI**)



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This training manual is part of a training course for health workers (clinical officers and nurses) at first-level health facilities (health centres or district hospital outpatient clinics).

These materials are based on input from:

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- ACT International, Atlanta, USA.

The authors also gratefully acknowledge significant input from the CDC Global AIDS Program's Training Course on Diagnostic HIV Testing and Counselling in TB Programs.

Prior to use, please ask for the most up-to-date version of this course. We also ask that you provide feedback. We will continue to improve both the IMAI guidelines and these training materials and add additional training aids such as video materials and further photo booklet case exercises. Work is also ongoing to translate IMAI materials into several languages.

Prior to implementing this course, please check the www.who.int/hiv/capacity website (register on the IMAI Sharepoint website to obtain the most current drafts), or e-mail imaimail@who.int, or contact the IMAI team at WHO's Department of HIV/AIDS for updates and other implementation support.

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Chapter 1: COURSE INTRODUCTION

Learning objectives

By the end of this session you will be able to:

- Know fellow participants and facilitators
- Recognize the role of the facilitator/s
- Recognize administrative arrangements
- Describe the learning objectives of this module
- Recognize the context of this training and how module I is structured

The facilitator will introduce you to your fellow participants, course facilitators and course organizers. The course organizers will also brief you on any administrative arrangements related to this training.

TB and HIV are leading public health problems in several countries. TB is a common cause of morbidity and death in HIV-infected persons. Persons with undiagnosed, untreated and potentially infectious TB are often seen in HIV care settings.

This module has been developed for nurses and clinical officers at health centres or district hospital outpatient clinics.

Training Objectives:

- To provide evidence-based training on to TB infection control at health facilities

This module includes two chapters:

Chapter 1: Course introduction

Chapter 2: How to avoid spreading TB in health facilities

This one-day training course can be given as a continuation to the IMAI TB/HIV co-management training or as a stand-alone course.

What does this course cover?

This training will take you through:

- How TB is spread
- Stage at which TB disease is infectious
- TB infection control plan
- Preventing TB transmission through good patient management
- Environmental control measures
- Recommendations for screening health workers for TB and HIV.

Training methodology:

This course adopts a participatory and interactive approach. Participants will work through the sections with the aid of facilitators and will learn through a combination of individual reading sessions, group discussions, facilitator-led drills, short answer exercises and case studies. The course is designed to maximize involvement of all participants.

Note on training methodology:

- Case studies should be done individually (with feedback from the facilitator).
- Drills are done in group sessions.

Target audience for this training:

The target audiences of this training are:

- Nurses and clinical/health officers who are at health centres and outpatient facilities of district hospitals.

Training Materials for participants:

Each participant should receive the:

- *Participant's Manual for IMAI TB Infection Control Training at Health Facilities* (this manual)
- Country adapted IMAI/STB TB Care with TB-HIV Co-management guideline module
- Country adapted *IMAI/IMCI Chronic HIV Care with ARV Therapy and Prevention* guideline module
- Country adapted *IMAI Acute Care* guideline module

Chapter 2: How to avoid spreading TB

Learning objectives

At the end of this session you should be able to:

- Explain how TB spreads in health-care settings
- Understand the reason for a health facility TB control plan
- Prevent TB transmission in a health-care setting through good patient management

2.1 How TB is spread

TB is caused by *Mybacterium tuberculosis.* People who have TB disease in their lungs or larynx (throat) can release tiny particles containing *M. tuberculosis* into the air by coughing or sneezing. These particles are called droplet nuclei. They are invisible to the naked eye because they are only about one-millionth of a metre long. Droplet nuclei can remain airborne in the air of a room for many hours, until they are removed by natural or mechanical ventilation.

For TB to spread, there must be a source that produces *M. tuberculosis* (a person with TB disease) and others to inhale droplet nuclei containing *M. tuberculosis.* A person is at risk if they share air with a person with TB disease of the lungs or larynx in an infectious stage. When another person inhales one or more of the droplet nuclei, he or she can become infected with TB, or, in other words, develop TB infection.

2.2 When is TB disease infectious?

TB can be infectious when it occurs in the lungs or larynx. In general, a person with TB disease of the lungs or larynx should be considered infectious until the person:

- Has had three consecutive negative sputum smears collected on two different days; or
- Has completed at least two weeks of anti-TB therapy, preferably with direct observation by a TB programme-appointed treatment supervisor; and
- Shows improvement in symptoms.

A person suspected of having TB should be considered infectious until a diagnostic evaluation is completed and excluded that the patient doe not have TB.

Children with pulmonary TB are unlikely to be infectious until they are old enough to have a forceful cough.

2.3 TB infection control plan[1]

More people living with HIV are attending health-care and community facilities than ever before. People living with HIV are particularly vulnerable to developing TB disease if they become infected with *Mybacterium tuberculosis (*the germ that can cause TB) and this can result from exposure in these facilities. People with undiagnosed, untreated and potentially contagious TB are often seen in HIV care settings.

Health workers and other staff are also at particularly high risk of TB infection because of frequent exposure to patients with infectious TB disease. Health workers and staff may themselves be immunosuppressed due to HIV infection, and be at higher risk of developing TB disease once infected.

Each facility should have a written TB infection control plan/protocol that what needs to be done and how in order to prevent TB infection in the facility. The protocol might include the following: prompt recognition of TB, cough hygiene, separation, prompt provision of services, investigation for TB, and fast track of patients with suspected or confirmed TB disease.

The plan should designate a staff member to be the infection control officer who is responsible for ensuring that TB infection control procedures are implemented in the facility and correct any inappropriate practises or failure to adhere to institutional policies.

In this course, we will learn about three ways to prevent TB transmission in your health facility:

- **Preventing TB transmission through good patient management:** Rapidly identifying patients with cough, suspected TB and TB disease, and managing them promptly prevents the transmission of TB in health-care facilities. There are specific ways in which you can operate in your clinic to ensure that reduces the risk of TB transmission in your facility.

- **Environmental control measures;**

- **Screening health workers for TB and HIV and educating them on TB infection control.**

[1] This text is taken largely from: *Tuberculosis infection control in the era of expanding HIV care and treatment: addendum to WHO Guidelines for the Prevention of Tuberculosis in Health Care Facilities in Resource-Limited Settings, 1999*

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2.4 Preventing TB transmission through good patient management

Five Steps for Patient Management to Prevent Transmission of TB in HIV Care Settings	
Step	**Action**
1	**Screen for suspected or confirmed TB**
2	**Educate on cough hygiene**
3	**Separate patients suspected of having TB**
4	**Provide HIV services**
5	**Investigate for TB or Refer**

*Although TB patients on adequate treatment are no longer infectious, it may be difficult for the facility to determine if anyone reporting being on treatment for TB has indeed received adequate treatment. The most cautious procedure is to manage those who are on treatment in the manner described.

Description of five steps for good patient management to prevent transmission of TB in health-care settings:

Step 1: Screen for suspected or confirmed TB

Early **recognition** of patients who have suspected or confirmed TB disease is the first step in the protocol. A staff member should be assigned to screen patients for prolonged duration of cough immediately after they arrive at the facility. Patients with cough should be allowed to enter, register, and receive a card without standing in line with other patients.

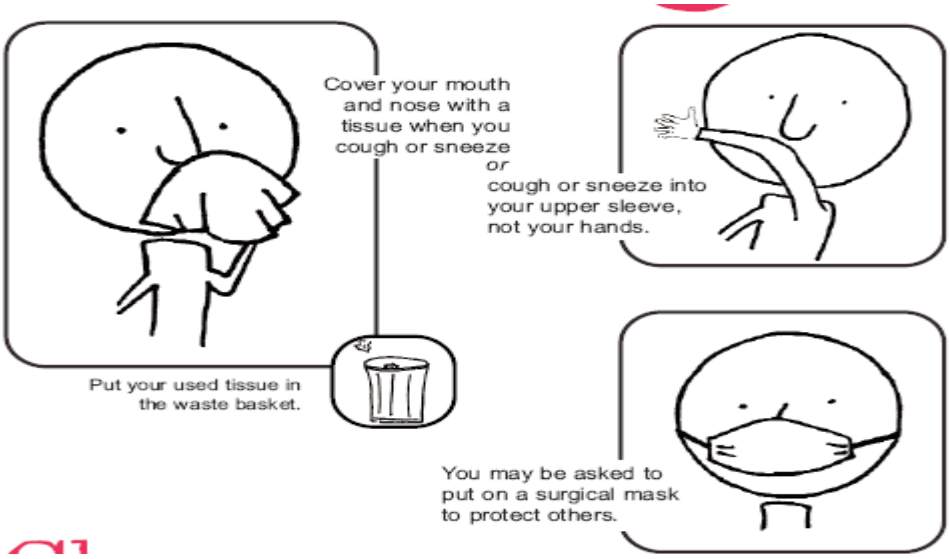
Step 2: Educate on cough hygiene

In the screening, patients who are suspected to have TB must be given advice on **cough hygiene** (also called cough etiquette) that is, they must cover their mouths and noses when coughing. They should be provided with a face mask (e.g. surgical mask) or tissues to cover their mouths and noses. If neither is available, advise them to raise their arm and use their forearm to cover their mouth and nose when coughing.

Face masks help prevent the spread of *M. tuberculosis* from the patient to others. The face mask can capture large wet particles near the patient's mouth and nose, preventing the bacteria from being released into the environment. Face masks could be provided to people who show positive symptoms to wear until they leave the facility. Cloth masks can be sterilized and reused. Face masks do not protect those wearing them from inhaling *M. tuberculosis*. Actually, the use of these masks may contribute to a false sense of security.

It is less costly to provide paper tissues to these patients, with instructions to cover their mouths and noses when coughing or sneezing. People suspected of having TB and using paper tissues will be less conspicuous and therefore less likely to suffer stigma. However, paper tissues are also less likely to be used effectively.

Tissues and face masks should be disposed of in waste receptacles. Clients and especially staff should be encouraged to wash their hands after contact with respiratory secretions. *M. tuberculosis* cannot be spread from the hands, but other lung infections can. This is why it is advisable to use the forearm rather than the hand to cover the mouth and nose if a tissue or cloth is not available.



Step 3: Separate patients suspected of having TB

Patients suspected of having TB should then be removed from the presence of other patients and requested to wait in a **separate** well-ventilated waiting area.

A sheltered open-air space is ideal in warm climates. (**Drawing to be inserted**)

Step 4: Provide HIV services

It is recommended that you place symptomatic patients at the front of the line in order to quickly provide care and reduce the amount of time that others are exposed to them.

> **Speed up the diagnosis and management of people with TB and those suspected of having TB so that they spend as little time as possible at the facility.**

Some patients with symptoms suggestive of TB may have attended the clinic for another reason. If possible, these patients should **receive the services** they were originally trying to obtain (e.g. VCT, HIV care, medication refills, etc.) before being investigated for TB, or they should be referred for TB diagnosis. In an integrated service delivery setting, if possible the patient should receive the services they are there to obtain before TB investigation begins.

Step 5: Investigate for TB or refer

People suspected of having TB should promptly be **investigated** for it by following national protocols. If TB diagnostic services are not available onsite, the facility should have an established link with a TB diagnostic centre to which patients with symptoms can be **referred.**

Ideally, sputum samples should be collected and sent to the nearest laboratory. Sputum collection always should be done in a designated area with plenty of air circulation and away from other people. It should not be done in small rooms such as toilets or other enclosed areas. If this is not possible, the patient should be referred to the nearest TB diagnostic centre.

Every attempt should be made to facilitate this referral (e.g. through subsidizing transport costs or providing incentives) as further delays in diagnosis will increase the risk of exposing others to TB infection.

Ensure rapid diagnostic investigation of people suspected of having TB, including referring them to TB diagnostic services if these are not available on site.

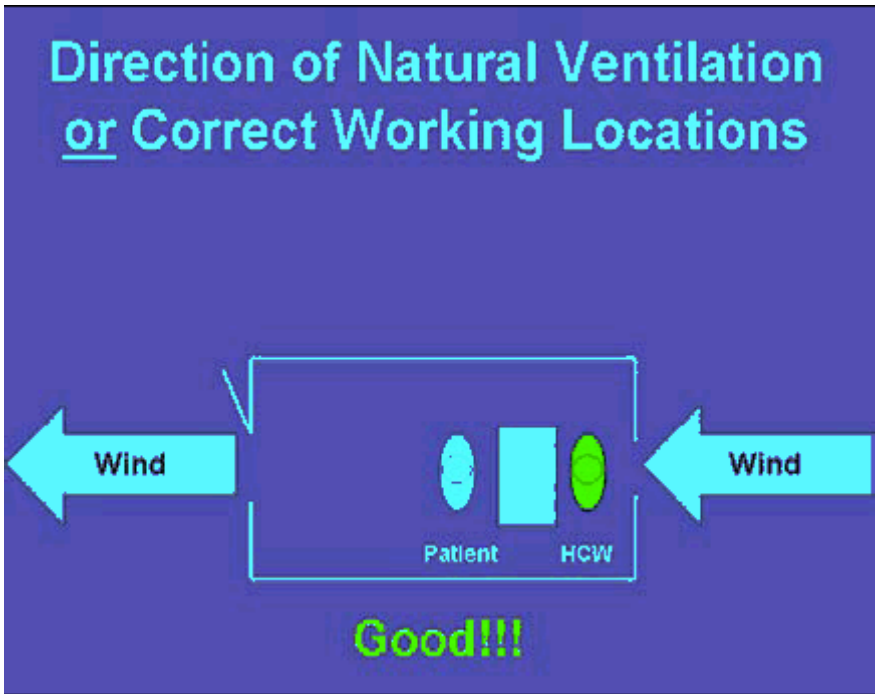
Ensure that that people on TB treatment adhere to it.

2.5 Environmental control measures

Ventilation is an important factor in air quality improvement. Ventilation refers to the movement of air within a building and replacement of air in the building with air from the outside. Increasing fresh air in the building is important because it can dilute the concentration of particles in the air, including the tiny droplets that contain *M. tuberculosis* from a coughing patient with TB in the lungs or larynx.

There is much that can be done to improve **ventilation** within existing health facility architecture and to make sure that health workers are "up wind" from coughing patients. This may be as simple as opening windows and doors, adding window fans, and paying attention to the direction that the wind blows through the facility. Other modifications may need to be discussed with the health facility administration and district team.

There are two ways to improve ventilation - natural and mechanical. **Natural ventilation** comes from opening windows and doors to create a cross-breeze, or by using an open air shelter for patients waiting for services. **Mechanical ventilation** means window fans (or more complex machinery). Fans should move more air through windows, not just mix air within a room. A desk or ceiling fan that just mixes the air without increasing ventilation through a room can actually make a TB risk situation worse by keeping the tiny droplets that contain *M. tuberculosis* suspended longer.



Exercise: For each of the following side effects, fill out the possible cause, what do to and when to consult a medical officer or doctor.

1. Which of the following can be used/advised for cough hygiene (tick all that apply)

   a. Cloth or paper mask (surgical mask)
   b. Tissue
   c. Old cloth
   d. Covering mouth and nose with patient's forearm
   e. Covering mouth and nose with patient's hand

2. Rate each case according to the likelihood of transmitting TB. A rating of 3 means the person poses the highest risk of transmitting TB. A rating of 1 means the person poses the least risk of transmitting it.

   a. ___Post-partum woman bringing child for immunization, coughing since delivery due to undiagnosed TB
   b. ___A person suspected of having TB
   c. ___TB patient on treatment for three months using DOT
   d. ___Three-year-old child with newly diagnosed pulmonary TB
   e. ___Patient with TB meningitis (no other site)
   f. ___Patient with sputum smear-negative pulmonary TB
   g. ___Patient with pneumonia returns for sputum results; sputum was AFB positive
   h. ___Unknown patient coughing for three weeks, first visit, not covering mouth

Exercise: For each of the following side effects, fill out the possible cause, what do to and when to consult a medical officer or doctor.

(1) In the following drawings, circle the correct practise; put a box around a problem drawing

a. 

b. 

(2) Rate each according to risk of TB transmission (3 - greatest risk; 1 - least risk)

a. ___A room with an open window, open door, and a window fan
b. ___Enclosed room with an open window, but door is kept shut; no window fan
c. ___Enclosed room with no window fan or open window
d. ___Enclosed room with window, door and window fan, but the window and door are shut during clinic hours.

(3) Draw lines to categorize the interventions.

Patient management improvement to reduce risk of transmission	Open window Open door Window fan
Mechanical ventilation	Move people suspected of having TB to front of line
Natural ventilation	Speed up diagnosis of TB Make sure patients adhere to TB treatment Waiting room outside without walls Provide tissues for coughing patients

(4) Mark each statement as “True” or “False” and explain why.

T F Coughing patients should be sent to the toilet to produce sputum samples

T F A face mask (surgical type) worn by a coughing patient with TB can help prevent TB transmission.

T F A face mask (surgical type) worn by a healthy health worker is a good way to prevent TB transmission.

T F Never send coughing patients outside to produce a TB sputum sample.

T F There is only risk of TB transmission in adult medical and TB clinics.

(5) What could be improved in this clinical exam room to reduce health-worker risk of being infected with TB?

2.6 Recommending screening of health workers for TB and HIV and educating them on TB infection control

Screening health workers for symptoms of TB and HIV. See section A. Do not ignore symptoms in yourself or your colleagues in the health facility.

Health workers and all other staff working at the facility should be educated about signs and symptoms of TB and be encouraged to seek care if they develop symptoms and signs which suggest TB.

In the absence of symptoms, screening with a chest X-ray has proved ineffective. The best approach is to screen by accepted methods and respond promptly to symptoms.

All staff should be trained and educated on TB and the TB infection control plan in the health-care setting. Training should include noting the special risks of contracting TB faced by HIV-infected persons, and the need for diagnostic investigation for those with signs or symptoms of TB. You are receiving this training, please ensure that everyone else in your facility is trained.

Health workers and other staff should be informed and encouraged to undergo HIV testing and counselling, and should be given information on relevant HIV-care resources. Health services should provide voluntary, confidential HIV counselling and testing for staff after they provide their informed consent. Services should also prioritize and facilitate access to treatment when it is needed. In several countries, special services for health workers are increasingly becoming available.

There is no role for health workers or staff to use face masks for protection from TB. Personal respiratory protection (respirators) is not a priority intervention. Respirators can protect health workers from inhaling *M. tuberculosis* only if appropriate work practice and environmental controls are in place; i.e. they are last line of defence. Their use should be restricted to specific high risk areas in hospitals and referral centres, such rooms where spirometry or bronchoscopy are performed or specialized treatment centres for persons with multi-drug resistant TB.

Exercise: Short answers.

What is the difference between a face mask and a respirator?

Clinical Sessions: TB Infection prevention assessment and plan

Your facilitator will guide you through a half-day clinical session.

The purposes of the outpatient clinic session is for participants to be able to:

- Assess the outpatient department setup of the health facility with regard transmission of TB
- Recommend a TB infection prevention plan