Training TB Infection Prevention and Control in Health Facilities
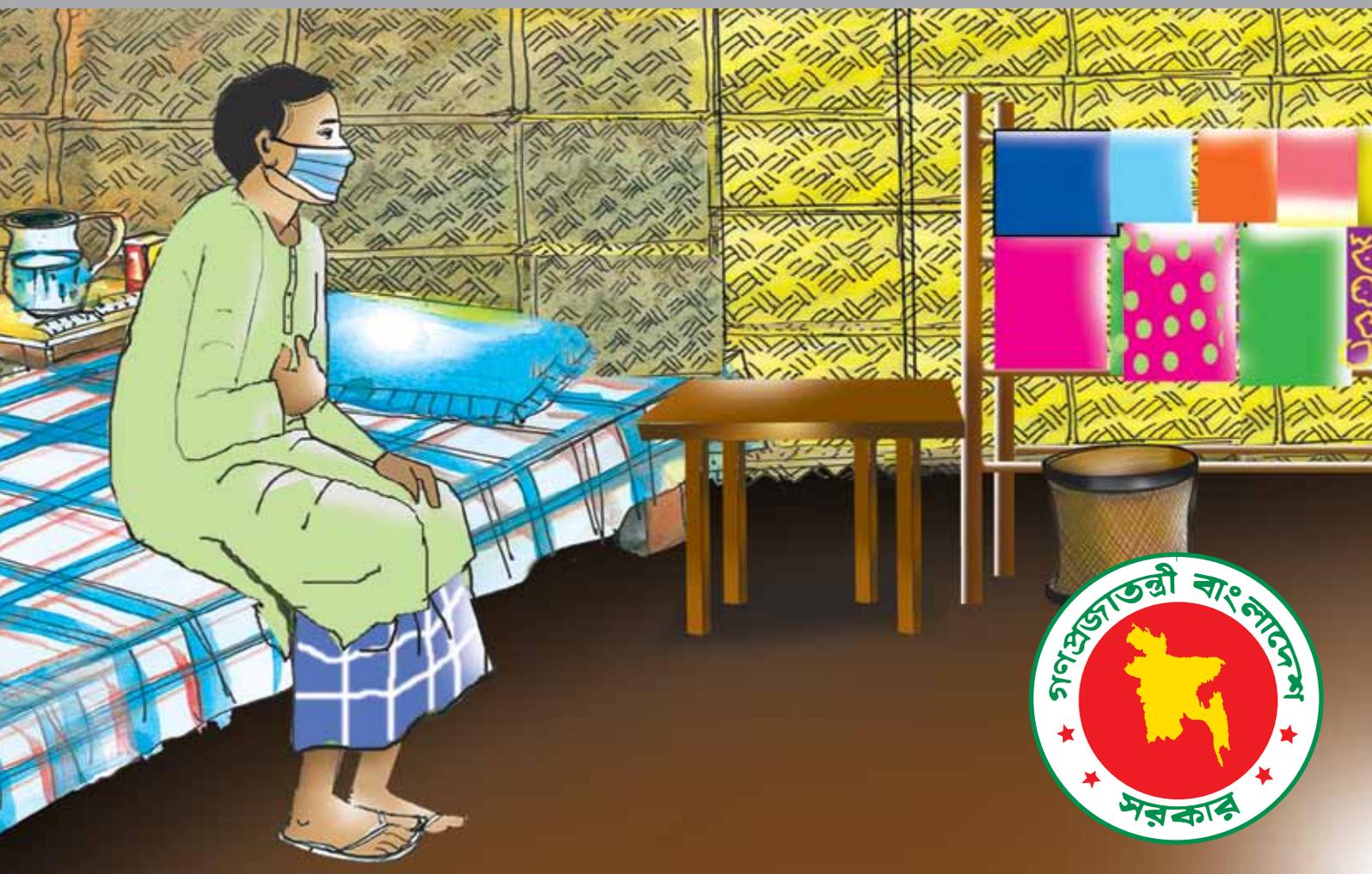
Facilitators' Manual

TB Infection Prevention and Control in Health Facilities

Facilitators' Manual

ACKNOWLEDGEMENTS

CONTENTS

ABBREVIATIONS

ACSM	Advocacy Communication and Social Mobilization
DR-TB	Drug resistant tuberculosis
HCW	Health care worker
IC	Infection control
IPC	Infection prevention and control
PPT	PowerPoint
Rx	Treatment
SOP	Standard Operating Procedures
TB	Tuberculosis
UVGI	Ultraviolet germicidal irradiation

INTRODUCTION TO THE FACILITATORS' MANUAL

In 2011 the "National Guidelines for Tuberculosis Infection Control" were launched, providing guidance to health care workers (HCWs) and hospital managers on the prevention of the transmission of tuberculosis (TB) in their facilities.

In many health facilities TB Infection Prevention and Control (TB-IPC) is not yet up to standard, creating a high-risk of TB infection for HCWs and their patients. Training and supportive supervision of HCWs and their managers is needed to build their capacity to improve their TB-IPC practices.

This facilitators' manual is designed for the facilitators of the training course "TB Infection Prevention and Control in health facilities". The manual guides the facilitators on the training content, process and methodology. The facilitators' manual includes all the documents to be used by the facilitators. This manual is used in conjunction with the participants' manual and the PowerPoint (PPT) slides.

BASIC TRAINING COURSE INFORMATION

Target audience
The training is developed for teams of four Infection Prevention and Control (IPC) key staff members (doctors, nurses, laboratory staff, hospital managers and IPC working group members) from both general and drug resistant TB (DR-TB) hospitals, and is for a maximum of 24 participants.

Facilitators
The training course is facilitated by a group of TB-IPC core trainers, who have been trained in the TB-IPC training of trainers.

Goal and Objectives

Overall Goal
By the end of this training course the participants are able to develop and implement the TB-IPC plan for their health facility, and monitor compliance with TB-IPC standards.

Specific Objectives
By the end of this training course the participants will be able to:
1. Explain the purpose and relevance of TB-IPC in Bangladesh hospitals
2. Use the National Guidelines for TB Infection Prevention and Control for their professional practice
3. Make a TB-IPC risk assessment for their hospitals
4. Identify the TB-IPC tasks and responsibilities of staff in their hospitals
5. Present the FAST strategy and explore how the FAST strategy might be implemented in their hospitals
6. Give TB-IPC health education to their hospitals' health workers, and to patients and their family members
7. Define the TB-IPC standard operating procedures (SOPs) to be developed for their hospitals and agree on timelines
8. Develop a TB-IPC implementation plan for their hospital and advocate for its implementation
9. Assess the integration opportunities with overall health facility IPC.

Sessions
The training course includes the following 10 sessions:
Session 1: Welcome and introduction
Session 2: The basics of TB infection and Prevention Control
Session 3: A TB-IPC risk assessment
Session 4: Administrative and environmental controls
Session 5: TB-IPC among HCWs
Session 6: The FAST Strategy
Session 7: TB-IPC health education
Session 8: Personal protection
Session 9: TB-IPC implementation plan
Session 10: The course evaluation

Duration of the Training Course
The duration of the training course is two days, with working hours from 9.00–17.00.

Course language
The course is conducted in Bengali and the course materials are in English.

Training Methodology

The training program focuses on the competencies (knowledge, skills and attitudes) the participants need to practice TB-IPC in their workplace. The participants will assess the TB-IPC practices in their health facility and they will develop a TB-IPC work plan for their health facility, that they will be able to implement when they return to work. Supportive supervision will be provided after the training, to support the teams with the implementation of their TB-IPC plan.

Different training methods are used to enhance active participation and sharing among participants such as: sharing in groups, sub group work, role-plays and exercises to assess the current TB-IPC situation and plan for improvements.

Course Materials

The course materials consist of the Training Curriculum, the Facilitators' Manual, the Participants' Manual, the training course evaluation and evaluation report template and a certificate of attendance. The Participants' Manual includes all the participants' course materials: An introduction to the training course and the objectives, basic TB-IPC information and exercises.

Evaluation of the Course

Evaluations take place:
– At the end of the first day: To get feedback from participants on the training course content and methodology.
– At the end of the course: The participants fill out a course evaluation form.

The evaluation results will be used in the course evaluation report. The results will be discussed by the trainers and the course coordinators to learn lessons from participants' feedback and to improve the training course program, methodology and materials.

Certification

At the end of the training course the participants will receive a certificate of attendance.

TRAINING COURSE PROGRAM

Day 1

Time	Session	Facilitator
08:00-09:00	Registration	Secretary
09:00-10:00	**Session 1: Welcome and introduction**	
10:00-11:15	**Session 2: Basics of TB infection and prevention control**	
11:15-11:45	Break	
11.45-13.15	**Session 3: TB-IPC risk assessment**	
13.15-14.15	Lunch	
14.15-15.15	**Session 4: Administrative and Environmental controls**	
15.15-15.30	Break	
15.30-16.30	**Session 5: TB-IPC among HCWs**	
16.30-16.45	Evaluation of the day	

Day 2

Time	Session	Facilitator
09.00- 09.30	Recap Introduction	
09.30-11.00	**Session 6: The FAST Strategy**	
11.00-11.30	Break	
11.30-13.00	**Session 7: TB-IPC health education**	
13.00-14.00	Lunch	
14.00-15.00	**Session 8:Personal protection**	
15.00-16.30	**Session 9:TB-IPC implementation plan**	
16.30-17.00	Evaluation of the course	

SESSIONS

To support the facilitators in facilitating the training session appropriately, every session is described in detail:

1. The session duration, the session objectives, the methodologies used and the materials needed
2. The training process in steps: the tasks of the facilitators and the participants during each step
3. Background information for the facilitator on the content and the methodology of every step in the training process.

DAY 1

SESSION 1: WELCOME AND INTRODUCTION

Background of this session

The participants come to this training with different expectations and questions about the training program, their fellow participants and the facilitators. This first session is designed to get the participants "on board", so that they are open to fully participate in this course, therefore it is important to devote enough time to this first session.

Duration:

60 minutes

Objectives:

By the end of this session the participants:
  – Know the facilitators and the participants
  – Know the training program and have agreed upon the ground rules
  – Are open to sharing experiences.

Methodologies:

Plenary presentations, work in groups.
Working in groups = working with another person to discuss a given item.
Working in groups facilitates quick sharing and the participation of everyone.

Materials needed:

Participants and Facilitators' Manual
PPT slides
Flip charts and stands (2)
Markers (6)
A4 paper to make name tags

TRAINING PROCESS

Step 1:   Welcome (5 minutes)

Welcome the participants to the training course **"TB Infection Prevention and Control in health facilities"**.
Invite the participants to clearly write their name and facility on a name card.
Present the facilitators.

Step 2:   Getting to know each other (35 minutes)

Tell the participants to share the following with their neighbor (groups):
 – How long have you worked in TB control?
 – What do you want to learn in this training course (maximum 2 items)?

After 10 minutes: The neighbors present each other.
The facilitator writes the participants' learning needs on a flip chart.

Step 3:   Introduction to the course (10 minutes)

Explain the importance of TB-IPC and that TB-IPC practices in facilities are not up to standard. This course aims to address this concern by building the capacity of staff.

Introduce the goal and objectives of the course, and the course program.

Refer to **participants' learning needs**, written on the flip chart.
Explain that in this course **Adult Learning Principles** will be used. The experiences and questions of all participants are a necessary part of participants' learning process.

Hand out the **Participant's Manual** and explain how this manual will be used.

Step 4:   Ground rules (10 minutes)

Ask the participants and the facilitators to develop the ground rules for this training course.
Write these rules on a flip chart and post it on the wall.
Create also a "Parking Lot" to write questions/topics that need to be addressed later.

BACKGROUND INFORMATION FOR THE FACILITATOR

Step 1: Welcome

Participants make a name card from a sheet of A4 paper and write their names on the card with a marker.

Step 2: Getting to know each other

This exercise has 2 steps:

1. Participant (A) sits together with their neighbor (B)

A interviews B:
  – How long have you worked in TB control?
  – What do you want to learn in this training course (maximum 2 items)?

Then B interviews A, asking the same questions.

2. In plenary A presents B, and B presents A. (1 minute per participant)

This methodology helps to break the ice and reinforces listening and presentation skills.
Every participant has one minute to present their neighbor. Time management is important.

Step 3: Course introduction

Start with the background to this course, to justify why TB-IPC training is needed:
  – TB infection also happens in hospitals
  – Good TB-IPC practices in hospitals decrease the risk of TB infection
  – HCWs must have the knowledge, skills and willingness/motivation to implement appropriate TB-IPC practices.

Course goal and objectives

Present the goal and objectives of the course. Link these to participants' learning needs (as written on the flip chart). In order to manage participants' expectations, tell the participants when their learning needs will not be addressed by the training.

This training course uses adult learning principles:
  – All the participants are professionals with tasks and responsibilities and on the job experience.
  – The training program focuses on participants' TB-IPC tasks and responsibilities and makes use of participants' TB-IPC experiences and questions.
  – We will promote sharing among participants by using group work, exercises and questions and answers (Q&A). A small number of PPT presentations will be used.

Participants' Manual

The participants' manual includes the exercises and background information. This manual will be a reference guide for the participants, when they return to the workplace.

Step 4: Ground rules

Agree upon the ground rules and add your ground rules as facilitators (e.g. phone on silent, no computers on the table etc.).

SESSION 2: BASICS OF TB INFECTION AND PREVENTION CONTROL

Background of this session

All participants work in TB control, some know more about TB Infection and TB-IPC than others. In this session we want to get everybody to the same basic level of information about TB Infection and TB-IPC. We want the participants to share what they already know, and to ask any questions they may have. We start with the participants' professional practices and finish with TB-IPC concepts.

Duration:

75 minutes

Objectives:

By the end of this session the participants are able to:
– Explain how TB is spread and who are most at risk of TB infection
– Present the relevance of TB-IPC and the role of the HCW
– Present the four levels of TB-IPC and the interventions at these different TB-IPC levels
– Advocate for TB-IPC as part of general IPC.

Methodologies:

Plenary presentations, discussion, Q&A and group work.

Materials needed:

National Guidelines for TB-IC (Two per health facility)
Four flip charts titled: Managerial Measures, Administrative Measures, Environmental Measures, and Personal Protection.

TRAINING PROCESS

Step 1: Why TB-IPC is important? (15 minutes)

Introduce the session objectives.
Ask the following questions (Plenary Q&A)

1. How is TB spread?
2. When is TB transmission more likely?
3. Who is most at risk of TB infection?
4. What is the objective of TB-IPC?
5. Why is TB-IPC so important?

Wrap up with some PPT slides.

Step 2: How to avoid TB transmission in the health facility? (30 minutes)

In groups of four the participants list the different TB-IPC measures taken in their health facilities (10 minutes).
In plenary the facilitator presents the four levels of TB-IPC and writes each level on a separate flip chart:
1. Managerial control
2. Administrative control
3. Environmental control
4. Personal protection.

Invite the groups to present their TB-IPC measures listed under Managerial Control, Administrative Control, Environmental Control and Personal Protection.

The facilitator writes these items on the different flip charts.
Summarize the four levels of TB-IPC, and add TB-IPC measures where necessary, refer to the overview of TB-IPC measures in the participants' manual.

Come to conclusions:
  – Which TB-IPC measures the health facilities take most frequently?
  – Which TB-IPC measures the health facilities ignore?
  – Which TB-IPC measures are priorities?

Step 3: Implementing TB-IPC (20 minutes)

Tell the participants to discuss "Which people play a role in TB-IPC in your health-facility?" in their groups (5 minutes).
Invite the groups to share the results of their group-work.
Summarize the key messages:
1. Everybody has a role to play in TB-IPC
2. TB-IPC is part of the general facility infection prevention and control policy and practice.

Step 4: National TB-IC guidelines (10 minutes)

Present the National TB-IC guidelines, and explain that these guidelines guide practices at the facility level. Walk with the participants through the main chapters. Present the summary TB-IPC guidelines in Bengali.

BACKGROUND INFORMATION FOR THE FACILITATOR

Step 1: Why TB-IPC is important?

Ask the questions below and give the participants time to respond. The questions will get the participants to use and share their knowledge and experiences.

Q1: How is TB spread?
Airborne particles (droplet nuclei) carry *M. tuberculosis*. These droplet nuclei are spread when people suffering from pulmonary or laryngeal TB, sneeze, cough, laugh or sing. TB spreads from infectious droplet nuclei are 1-5 micrometers in diameter, and normal air currents can keep them suspended and airborne for up to 24 hours.
Infection occurs when a susceptible person inhales droplet nuclei containing *M. tuberculosis* and the organisms reach the alveoli of the lungs. Once in the lungs, the organisms are taken up by the alveolar macrophages and maybe contained or spread throughout the body depending on the immune response.

Q2: When is TB transmission more likely?
The probability of a person who is exposed to TB bacilli becoming infected depends on:
 – The concentration of infectious droplet nuclei in the air. This is influenced by the number of organisms generated by the TB patient and the amount of ventilation in the area of exposure
 – The duration of exposure to the infectious droplet nuclei
 – The proximity to the source of the infectious droplet nuclei and the virulence of organism
 – The immune status of the individual exposed.

Q3: Who is most at risk for TB infection?
a. Patients with a high risk for infection (e.g. HIV patients, children, old people, very weak patients, diabetes patients etc.).

b. HCWs (including community volunteers) and visitors who are in close contact with TB patients:
1. Who have TB disease, but are not yet diagnosed
2. Who have TB but are not TB symptomatic
3. Who are not on effective treatment.

c. Family members living together with TB patients:
1. Who have TB disease, but are not yet diagnosed
2. Who have TB but are not TB symptomatic
3. Who are not on effective treatment.

d. People in congregate settings living and working together with people:
1. Who have TB disease, but are not yet diagnosed
2. Who have TB but are not TB symptomatic
3. Who are not on effective treatment
This might be people in prisons, schools, hospital wards, industries (garment industry) and religious places (mosques and churches).

Q4: What is the objective of TB-IPC?
TB-IPC aims to minimize TB transmission and thus create a safe environment for patients, HCWs, and people living and working with TB patients.
TB-IPC in the health facility aims to minimize TB transmission in the facility. This will be the focus of this training course.

Q5: Why is TB-IPC so important?
TB-IPC is an important intervention to "End-TB". TB-IPC has become even more urgent with the increase of MDR-TB and XDR-TB. Preventing TB infection is a key factor in fighting the TB-epidemic.

Step 2: How to avoid TB transmission at the health facility

In groups comprised of the same health facility, the participants list the measures used in their health facility to avoid TB transmission.

It is important that the participants start with the practices they know from experience. Knowing your own practices is a starting point to improving them.

A. The four levels of TB infection control:
1. Managerial
2. Administrative
3. Environmental
4. Personal protection.

1) Managerial controls
   a. TB-IPC guidelines, TB-IPC plan and monitor the implementation
   b. TB-IPC committee and focal person
   c. TB-IPC risk assessment
   d. Facility design and patient flow have been assessed
   e. TB-IPC Standard Operating Procedures (SOPs)
   f. Advocacy, Communication and Social Mobilization (ACSM) materials and activities
   g. Training of staff.

2) Administrative controls
   a. Identify people with TB symptoms
   b. Separate infectious patients
   c. Cough etiquette guidance
   d. Appropriate sputum collection and transport
   e. Monitor the turnaround time of patients in the health facility
   f. TB/HIV prevention and care package for HCWs (workplace policy, staff education and the provision of screening).

3) Environmental controls
   a. Ventilation system
   b. Building (appropriate waiting areas, investigation rooms etc)
   c. Lab biosafety
   d. Ultraviolet germicidal irradiation (UVGI) system
   e. Waste management.

4) Personal protection
   a. The protective steps patients and HCWs take to avoid the spreading of the droplet nuclei e.g. don't share your room when you are still infectious, don't let children visit the TB ward etc.
   b. Respirators: N95 masks for HCWs and surgical masks for patients.

B. Come to conclusions
   a. Which TB-IPC measures the health facilities use most frequently?
   b. Which TB-IPC measures the health facilities ignore?
Compare what is on the different flip charts and ask the participants what they conclude:
   – Which of the flip charts has the most activities?
   – What does this tell us?
   c. Which TB-IPC measures are priorities?

A combination of different measures reduces the transmission of TB in health facilities.
The first priority is to implement administrative controls because they have been shown to reduce the transmission of TB in healthcare facilities. Administrative controls are needed to ensure that people with TB symptoms can be rapidly identified and, if infectious, can be separated into an appropriate environment and treated.

(Source: WHO policy on TB infection control in health-care facilities, congregate settings and households, 2009)

> **Key interventions to avoid TB transmission:**
>   a. **Prompt detection of infectious patients**
>   b. **Treatment of patients**
>   c. **Airborne precautions**

Step 3: Implementing TB-IPC

Which people have a role to play in TB-IPC in the facility?

Staff Level	Role
Hospital Management: Directors, deputy directors, heads of departments	TB-IPC Planning Ensure the budget for the implementation of TB-IPC plans Monitor and evaluate the implementation of TB-IPC plans
HCWs: Doctors, nurses, laboratory staff, pharmacists.	Treat patients Practice TB-IPC measures (triage, cough etiquette, ventilation etc) Come with suggestions/improvements for TB-IPC Inform and educate patients and colleagues
Administrative Staff: Receptionists, cleaners, financial staff.	Practice TB-IPC measures (cleaning, waste management, Come with suggestions/improvements Inform/educate patients
Patients	Follow the TB-IPC measures
Visitors	Follow the TB-IPC measures

TB-IPC is part of facility IPC:
The health facility's IPC focal person is also responsible for TB-IPC.

If TB-IPC is part of general hospital IPC:
– It will get more attention from hospital management
– It is part and parcel of the quality care practice for all HCWs.

Step 4: National guidelines for TB-IC

The national guidelines for TB-IC were published in 2011 and a summary is available in Bengali, both documents are part of the course materials.

These guidelines provide guidance to health facilities on the planning, implementation and the monitoring and evaluation of TB-IPC. The TB-IPC measures which health facilities implement depend on the type of health facility and the resources available.

SESSION 3: TB-IPC RISK ASSESSMENT

Background of this session

In this session the participants will use the TB-IPC risk assessment tool to assess the current TB-IPC situation in their health facility. This assessment will show the strong and weak parts of the TB-IPC practices. This is the first step in the development of a TB-IPC plan to improve the TB-IPC situation in the health facility.

Duration:

90 minutes

Objectives:

By the end of this session the participants are able to:
– Explain the TB-IPC risk assessment tool
– Present the purpose and methodology of the TB-IPC risk assessment
– Make a TB-IPC risk assessment of their health facility.

Methodologies:

Plenary presentations, group work and plenary sharing.

Materials needed:

TB-IPC risk assessment tool.

TRAINING PROCESS

Step 1: Introduction of the session (15 minutes)

Present the session objectives.
Introduce the TB-IPC risk assessment: Purpose, methodology and the tool.
Introduce the TB-IPC risk assessment assignment: In teams comprised of health facility members, the participants do a TB-IPC risk assessment of their facility.

Step 2: TB-IPC risk assessment (45 minutes)

The facility teams work on the assignment.

Step 3: Plenary debriefing (25 minutes)

Each group presents the three priority TB-IPC practices that need improvement (5 minutes per team).
Summarize the priority TB-IPC practices that need improvement.

Step 4: From risk assessment to planning and implementation (5 minutes)

Discuss how the teams will use these results. The priority TB-IPC problems need to be addressed in the facility TB-IPC plan that the teams will develop on the second day of training.

BACKGROUND INFORMATION FOR THE FACILITATOR

Step 1: Introducing the session

TB-IPC risk assessment:
Purpose: To assess and analyze the risks of transmission of TB in a health facility.
The results of this assessment will direct the health facility in the development of the TB-IPC facility plan and monitor the implementation of this plan.

When should the TB-IPC Risk Assessment be done?
At baseline: To assess the current situation as a basis on which to develop the TB-IPC plan.
On an annual basis: To monitor the implementation of the TB-IPC plan and adjust the plan where needed.

Who initiates the TB-IPC risk assessment?
The TB-IPC focal person in the health facility together with the Health Facility Manager.

How to do the TB-IPC risk assessment (methodology)
Work with a multidisciplinary team (nurses, doctors, pharmacists, laboratory staff; include HCWs in TB control).
Use the TB-IPC risk assessment tool (on the next pages), discuss the items on the checklist, decide on the scores and summarize the results.

Health Facility TB-IPC risk assessment tool

What is the purpose of the TB-IPC Risk Assessment?
The TB-IPC risk assessment aims to assess and analyze the risk of transmission of TB in a health facility. The results of this assessment will direct the health facility in the development of the TB-IPC facility plan and monitor the implementation of this plan.

When should the TB-IPC Risk Assessment be done?
The TB-IPC risk assessment should be carried out in every health facility on an annual basis.

Who will do the TB-IPC Risk Assessment?
The assessment will be carried out by the (TB) IPC focal point in the health facility together with nurses, doctors, laboratory staff, and pharmacists working in the prevention of TB and the care of TB patients.
The results of the TB-IPC Risk Assessment will be discussed with the health facility manager.

Name of the facility: _____

Date of the assessment: _____

Date of the previous assessment: _____

Name, designation and function of the person responsible for this assessment: _____
_____

1. TB Infection control measures implemented

	TB Infection Control Measures **Managerial**	Yes	No	Comments/Suggested improvements
1.	An infection control committee or person is designated at this site			
2.	A (TB) IC plan is available for this site			
3.	Facility design and patient flow have been assessed to identify the best use of space and ventilation			
4.	TB-IC standard operating procedures (SOPs) are in place			
5.	ACSM materials are available and used in the right places			
6.	Staff are trained in TB-IC			

	TB Infection Control Measures **Administrative**	Yes	No	Comments/Suggested improvements
1.	Patients are routinely asked if they have a cough when entering the facility			
2.	Patients that are coughing are separated from others and "fast tracked" to a caregiver			
3.	A health care worker or volunteer gives cough etiquette guidance and assists with triage			
4.	Information about "cough etiquette" is present in the clinic			
5.	Sputum samples are collected in a designated area and away from others			
6.	Health care workers who assist during sputum collection take precautions			
7.	There is a tracking mechanism to monitor the turnaround time of lab results			
8.	There is a tracking mechanism to monitor the turnaround time of patients within the healthcare facility			
9.	A log is kept of all the staff who are diagnosed with TB disease			
10.	Staff are screened for TB at least annually			

	TB Infection Control Measures **Environmental**	Yes	No	Comments/Suggested improvements
1.	Natural and/or mechanical airflow is monitored daily by staff (especially in waiting rooms, sputum collection points and at least one exam room)			
2.	Patients are not crowded in hallways or waiting areas			
3.	Outside waiting areas are provided for outpatients with cough			
4.	Signage is in place to keep doors and windows open when feasible			
5.	UVGI is available and functioning When was the last maintenance?			
6.	Waste management is done properly			

	TB Infection Control Measures **Personal Protective Equipment**	Yes	No	Comments/Suggested improvements
1.	N95 respirators are available for staff			
2.	Staff have been trained on the proper fitting of respirators			
3.	Supplies are available to coughing patients (tissues, masks, trash bins etc.)			

Use this page to draw room design and patient flow

2. Design of the doctor's room

Make a sketch of the environmental TB-IPC Measures in the doctor's room in your facility:

- – Indicate the door(s) and window(s) and show the direction of airflow
- – Indicate any mechanical ventilation (fans, air-conditioning)
- – Indicate if UVGI is in place.

3. Make a flow chart of the patient flow through the facility
   – Patient Entry
   – Reception
   – Waiting areas
   – Doctors Room
   – Sputum collection point
   – Laboratory.

Discuss: "Does the route the patient has to follow allow them to be in the health facility for the shortest time possible?" Summarize your conclusions:

4. Summary of the facility assessment
Summarize your main findings:
    a. The good TB-IPC practices in your facility
    b. The poor TB-IPC practices in your facility.

Present the three priority TB-IPC practices that need to be changed (5 minutes).

Step 2: The TB-IPC Risk Assessment

The facilitators support the teams where needed. It is important that the teams assess the real situation, and not the situation they would like.

Tell the participants that they must complete: **1. TB Infection control measures implemented and 4. A summary of the facility assessment**. The design of the doctor's room (2) and the patient flow (3) can be done when time allows.

Step 3: Plenary debriefing

In the plenary debriefing, the teams will present **three priority TB-IPC practices that need to be changed**.
After the presentation there is room for clarifying questions.
After all the presentations the facilitator summarizes the most important sub-standard TB-IPC practices in participants' facilities.

Step 4: From risk assessment to planning and implementation

The results of this assessment will be used to develop/update the TB-IPC plan. This plan will define how the priority poor practices will be improved. The following day the TB-IPC plan will be developed, and it will be implemented when the teams are back in the workplace.

SESSION 4: ADMINISTRATIVE AND ENVIRONMENTAL CONTROLS

Background of this session

This session will go into administrative and environmental controls in more depth. We will focus on the measures that are needed for good TB-IPC practices and the SOPs that will support the implementation of these measures.

Duration:

60 minutes

Objectives:

By the end of this session the participants are able to:
– Present measures and SOPs to promptly identify persons with presumptive TB and initiate treatment
– Present measures and SOPs for environmental controls.

Methodologies:

Plenary presentations, discussions, groups and individual reading.

Materials needed:

PPT slides.

TRAINING PROCESS

Step 1: Introduction of the session (5 minutes)

Present the session objectives and the key content.

Step 2: Administrative controls (30 minutes)

In plenary ask the participants:
1. To give some examples of administrative control measures
2. What the purpose of administrative controls is.

Give an interactive presentation on administrative controls: The purpose and the measures. Show good and bad practices. Refer to the National Guidelines on "Administrative Controls".

Group work (10 minutes)
In groups participants read one or two of the SOPs on triage, separation, cough etiquette, and minimizing time for diagnosis, and answer the following questions:
    a. What is the purpose of this SOP?
    b. Is the SOP clear?
    c. Could you use this SOP in your health facility? Explain why or why not.

Plenary sharing (15 minutes)
Discuss the questions for each SOP, with inputs from the various groups.

Step 3: Environmental controls (20 minutes)

Ask the participants in plenary:
1. To give some examples of environmental control measures.
2. What the purpose of environmental controls is.

Give an interactive presentation on environmental controls: the purpose and the measures. Refer to the National Guidelines" "Environmental Controls".

Show some pictures of "Good" and "Bad" examples of infrastructure; discuss the risks and the possible improvements.

Participants read the SOP on natural ventilation.
Discuss in plenary:
    a. What is the purpose of this SOP?
    b. Is the SOP clear?
    c. Could you use this SOP in your health facility? Explain why or why not.

Step 4: Key messages (5 minutes)

Ask participants to share the take-home messages for their facility.

BACKGROUND INFORMATION FOR THE FACILITATOR

Step 2: Administrative controls

Administrative controls aim to significantly **reduce the generation of aerosols** and exposure to droplet nuclei.

Administrative controls are the measures to promptly identify people with presumptive TB, initiate treatment, and protect patients, visitors and HCWs.

1. Promptly identify people with TB symptoms:
   - Triage
   - Separate infectious patients
   - Cough etiquette and respiratory hygiene
   - Sputum collection outside
   - Minimize time spent in healthcare facilities.

2. Promptly initiate presumptive TB patients on treatment:
   - Short turn-around times for laboratory results
   - Ensure that treatment is initiated.

3. Provide a TB prevention and care package for HCWs at risk.

Group assignment (10 minutes)
Every group reads one or two of the SOPs on triage, separation, cough etiquette, and minimizing the time for diagnosis.
   a. What is the purpose of this SOP?
   b. Is the SOP clear?
   c. Could you use this SOP in your health facility? Please explain why or why not.

Below are the SOP's from Tuberculosis Infection Prevention Procedures, TB CARE I, September 2012, Zambia:
1. Triage
2. Separation
3. Cough etiquette
4. Minimize time for diagnosis.

When the group work is finished, they share the results in plenary:
   – Start with SOP 1 etc.
   – Invite one group to answer the questions and the other groups that worked on the same SOPs to add when needed.

Wrap up the discussion:
1. Is this SOP useful in the implementation or improvement of these TB-IPC practices?
2. Who needs to develop these SOPs in your facility?

1. Triage – Assigned Cough monitor responsible
   a. Identify patients with cough, upon entering the facility:
      - Any client or family member with a cough that has lasted for two weeks or more.
   b. Direct patients with a cough to an outside sputum collection area FIRST, so they can provide a sputum sample:
      - Use a sputum container with a screw cap.
   c. Explain to them how and where to provide a sputum sample:
      - Take precautions if you assist with sputum collection.
   d. Instruct them where to bring the sputum sample:
      - A place outside the laboratory.
   e. When they return, direct them to a designated well-ventilated waiting area immediately:
      - Away from regular patients where they can wait until they can be seen.
   f. List all presumptive TB cases in the Presumptive TB Register
   g. Document, evaluate and report the number of confirmed sputum smear positive patients against the total number of patients suspected of having TB.
   h. At the end of each quarter, document, evaluate and report in the patient book the (average) number of days between the submission of sputum, the dispatch of the sputum results and the day treatment commenced.

2. Separation – Assigned member of staff responsible
   a. Separate patients with a cough from others
   b. Separate diagnosed TB patients who have not yet started treatment from other patients by giving them a specific time slot for visiting the TB health facility.

3. Cough etiquette – Assigned Cough Monitor responsible
    a. Display cover-your-cough posters in waiting areas and examination room, where patients cannot miss to see them (i.e. directly in front of them at eye-level and not on a back wall)
    b. Provide health education on cough etiquette as part of one-on-one counseling or as part of pre-clinic health talks:
- Cover mouth and nose when coughing or sneezing
- Turn head away from others
- Do not spit on the floor
- Wash hands frequently.

    c. If available, provide disposable surgical masks to all confirmed infectious pulmonary TB patients and patients suspected of having TB:
- If surgical masks are not available, provide paper tissues or serviettes.

    d. Instruct them to discard the surgical masks and paper tissues in a plastic bag and then in a trash bin.

4. Minimize time for diagnosis, onset of treatment, and time spent in enclosed areas – The entire team is responsible
    a. Move patients with a cough to the front of the queue to be seen with priority:
- If a well-ventilated waiting area is not available.

    b. Document in the patient book the date on which:
- Laboratory tests were dispatched and received (ideally, the turn-around time for sputum examination is 48 hours)
- The patient received results and medications (ideally, the patient is started on treatment within the same day of receiving the results).

    c. Evaluate and report delays in:
- The average time for diagnosis
- The average time between diagnosis and the start of treatment.

    d. Educate patients to minimize contact with others in enclosed areas.

Step 3: Environmental controls

The purpose of environmental controls: To have the right infrastructure and utilization, limiting the risk for infection for patients, HCWs and visitors.

Environmental measures
1. Avoid hallways and waiting rooms becoming overcrowded
2. Ensure good airflow using natural and mechanical ventilation
- Show different pictures of good and bad airflow
- Discuss what can be improved
- Natural and mechanical airflow needs to be checked daily.
3. Use UVGI
- Show a picture of UVGI and explain its purpose, where to install it and how to maintain it.
4. Establish appropriate biosafety measures
5. Safe waste disposal.

Group assignment (10 minutes)
Every group reads SOP 5 (Natural ventilation) or SOP 6 (Mixed mode ventilation) and discusses the questions below:
    a. What is the purpose of this SOP?
    b. Is the SOP clear?
    c. Could you use this SOP in your health facility? Please explain why or why not.

Plenary sharing
The groups share the results in plenary. Invite one group to answer the questions and the other groups that worked on the same SOPs to add extra information when needed. Continue with the next SOP.

Step 4: Key messages

Administrative and environmental controls are the core of the TB-IPC measures.
SOPs are necessary to ensure clarity about who should implement TB-IPC measures and they should be implemented.
The (TB)-IPC focal person is responsible for the development of the SOPs. Developing SOPs is teamwork and doctors, nurses, laboratory staff, administrative staff and hospital management all need to be involved in their development.

Fact Sheet: Ventilation and TB Infection Control

Sources: "Implementing the WHO Policy on TB Infection Control" and PPT presentation TRAC Plus/Center for Treatment and Research on AIDS, Malaria, TB and other epidemics.

Why is ventilation important in the implementation of TB Infection Control?
TB is spread through the air. Infectious particles (droplet nuclei) are suspended in the air and infection with TB occurs when these infectious particle are inhaled. Breathing clean air (air free of TB particles) will not lead to TB infection; therefore keeping the air clean is critically important. This can be achieved by ensuring good ventilation.

What is ventilation?
Ventilation is the removal of old or "contaminated" air and replacing it with new, fresh or "clean" air. This has the effect of removing infectious particles and diluting those that remain, so that the chances of inhaling infectious particles are reduced.
Mechanical ventilation can also control the direction of air flow so that air flows from less contaminated to more contaminated areas and then out. We distinguish between natural ventilation, mechanical ventilation and mixed ventilation.

Natural ventilation
Natural ventilation relies on open doors and windows to bring air in from the outside.
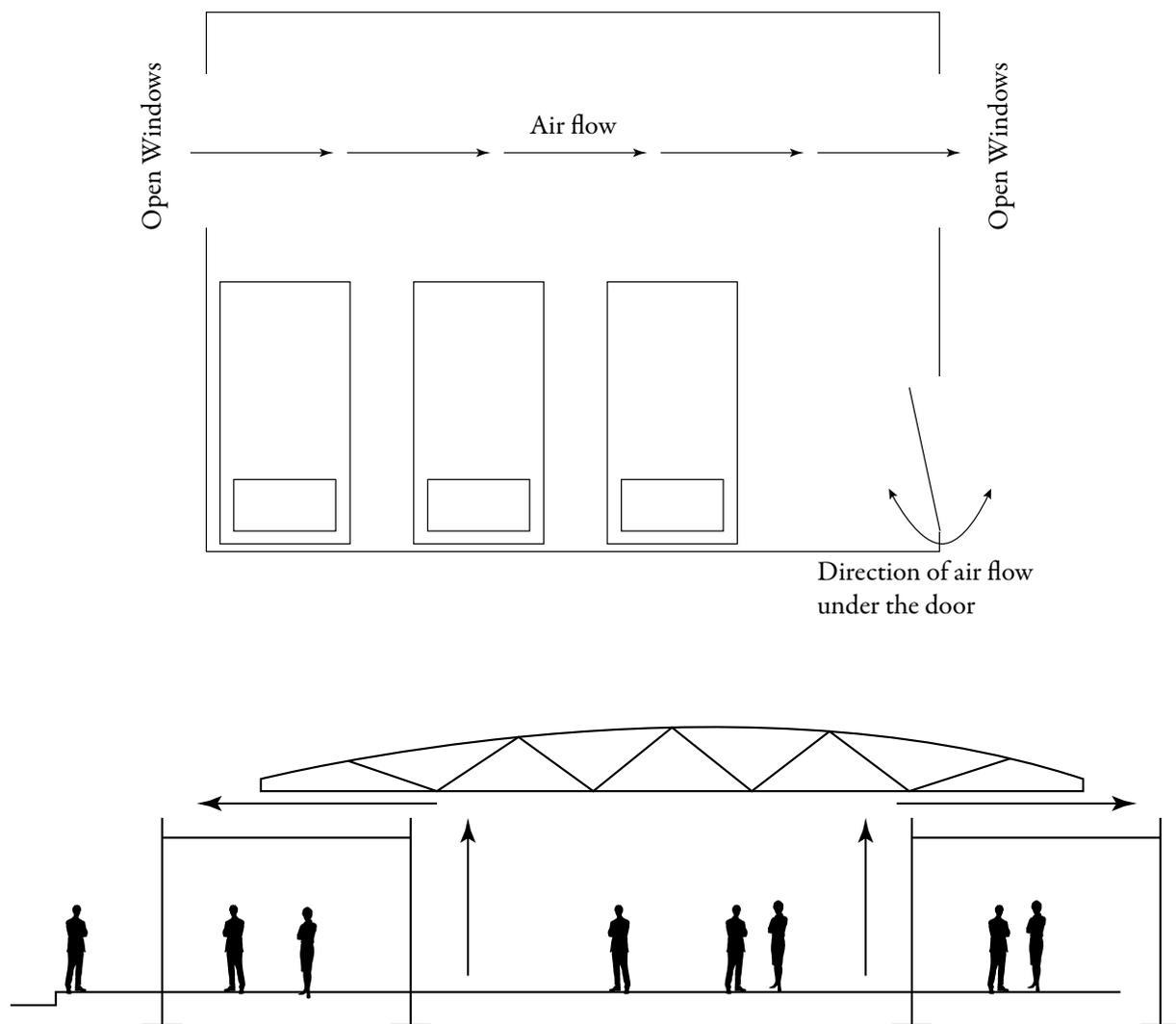
The space between the walls and the roof allows natural ventilation

Mechanical ventilation
Mechanical ventilation is the use of mechanical air-moving equipment, such as air conditioning and fans. Mechanical ventilation is used in situations where natural ventilation is not feasible or is inadequate.

Window (extractor) fans are generally an inexpensive and feasible method of using mechanical ventilation to direct air flow in many resource-limited settings. Fans only work in smaller rooms and usually don't extract all the air from the room.

Air-conditioning re-circulates and cools (or heats) the air, but it doesn't filter the air. When using air-conditioning, windows are closed and the old and "diseased" air is not removed. Air conditioning is "the enemy of TB-IPC".

Mixed ventilation

Mixed ventilation is a combination of natural and mechanical ventilation, e.g., open doors/rooms and the use of fans.

How can I mix the air?

The mixing of air will reduce high concentration pockets of infectious particles, such as in the corners of a room or in the vicinity of patients where natural ventilation alone is not sufficient. Air can be mixed by using fans or by opening the windows and taking advantage of wind.

What is directional air flow and how can I use this to keep HCWs safe?

Air should flow from low concentration of infection particles towards a high concentration. The HCW should always be "upwind" of the patient, clean air should flow from behind the HCW towards the patient. The patient should be seated next to an open window at all times.

**How can I measure ventilation rates?**

Ventilation rates are measured by 'air changes per hour' (ACH). The National TB Guidelines give more information on how to calculate the ACH, and the number of ACH needed for clean air.

Fact Sheet: Ultraviolet Germicidal Irradiation (UVGI)

Sources: "Implementing the WHO Policy on TB Infection Control" and "Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings", CDC 2005.

What is ultraviolet light and how does it kill bacteria?
Ultraviolet (UV) light is like sunlight and is effective in killing bacteria (including *M. tuberculosis*) by damaging bacterial DNA and preventing bacterial replication. UV light can be produced by low-pressure mercury vapor lamps which are used in commercial ultraviolet germicidal irradiation (UVGI) fittings.
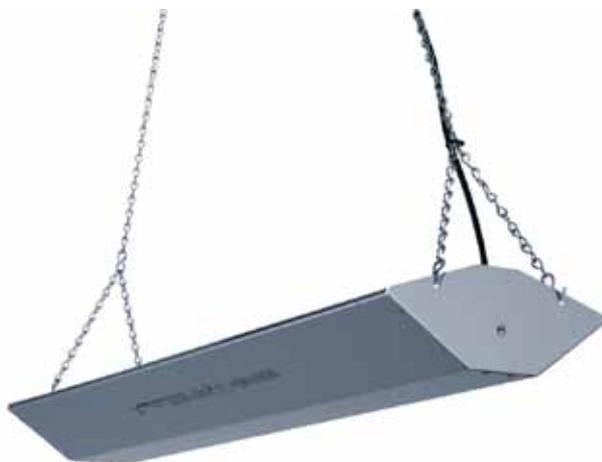
UVGI lamp suspended from the ceiling

What is the role of UVGI in TB infection control?
UVGI devices do not replace ventilation systems; rather they should be considered as a complimentary intervention.

Air MIXING is essential if UVGI is to be effective
UV light kills bacteria when they are exposed to it for a sufficient length of time and with enough intensity (brightness). UV light can damage human skin and corneas, so UV fittings are designed to allow UV light to only shine in the upper part of the room. UVGI therefore relies on the mixing of air from lower to upper room, meaning that air circulation must be present where UVGI fitting are installed. Air circulation can be achieved by opening windows and by using slow-moving ceiling fans.

Air mixing between the upper to the lower room
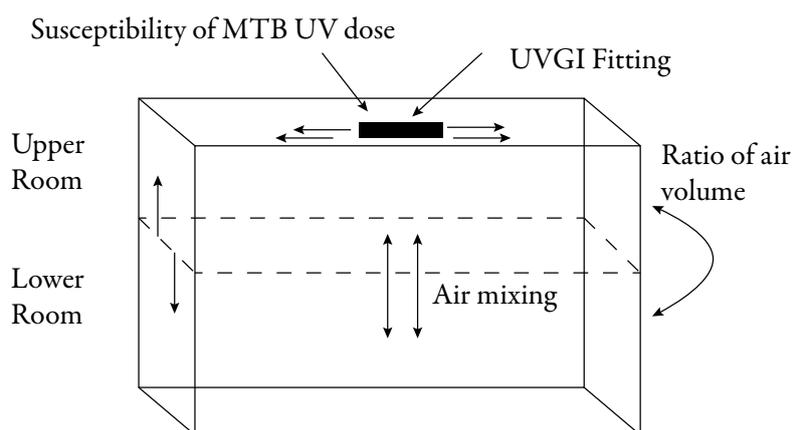
Maintaining the effectiveness of UVGI fittings
UV fittings attract dust and insects that reduces the amount of UV light released from the lamp. Therefore regular cleaning of UVGI fittings is necessary. Always be sure to switch off power to the fitting before cleaning. UV light output of lamps declines with age, so UVGI tubes should be changed and cleaned according to the instructions of the manufacturer or when irradiance measurements indicate that output is below effective levels.

Make sure the maintenance of these fittings is included in the facility's TB infection control plan. The monitoring of the fitting's performance should be conducted every three to six months, and must be done by a qualified service technician.

Safety considerations when using UVGI fittings

Over-exposure to UV light can cause redness of the skin (erythema), inflammation of the cornea (photo keratitis) and inflammation of the conjunctiva (conjunctivitis). Symptoms of these conditions normally commence about 6-12 hours after exposure and include a feeling of sand in the eyes, tearing and sensitivity to light, all of which are reversible. If staff or patients complain of these symptoms, UV light is escaping into the lower part of the room, which means the lamp is poorly positioned, or the UV light is being reflected off shiny surfaces and repositioning should be considered. In settings that use UVGI systems, patients and visitors should be informed of the purpose of UVGI systems and be warned about the potential hazards and safety precautions.

SOP's

SOP's from: Tuberculosis Infection Prevention Procedures; TB CARE I, September 2012, Zambia

SOP 5. Natural ventilation
SOP 6. Mixed mode ventilation

5. Natural ventilation – Assigned member of staff responsible
    a. Do not allow patients to sit in crowded hallways or waiting areas
    b. Create a designated waiting area for patients with a cough:
- In the general waiting area of the OPD
- In the TB clinic.

    c. Ensure that the doors and windows in all exam rooms are kept open during consultation hours
- Signage must be installed that directs HCWs to keep doors and windows open

    d. Place furniture in examination rooms such that staff-patient interactions occur with air flow passing from the staff to the patient, rather than from patient to the staff :
- Sketch a floor plan for each room
- Display the floor plans (laminated) just inside the door.

    e. Maintain the moving parts of windows and doors (especially the stays) to allow for maximum opening and adequate air exchange
    f. Keep a log to document the date and what was done: 1) Checking; 2) Servicing; 3) Replacement of part or repair:
- Record the date when the windows should be checked again
- Have any deficiencies repaired as soon as possible.

    g. Allocate adequate resources (budget and staffing) for maintenance.

6. Mixed-mode ventilation – Assigned member of staff responsible
    a. Install extractor fans in enclosed areas deemed necessary by the infection prevention control committee
    b. Service ventilation equipment on a regular schedule:
- Administrative controls regarding the operation of the fans should be in place to guarantee a flawless functioning

    c. Keep a log to record the date and what was done: 1) Checking; 2) Cleaning; 3) Replacement of part or repair:
- Record the date when the equipment should be serviced again
- Have any deficiencies repaired as soon as possible.

    d. Allocate adequate resources (budget and staffing) for maintenance.

SESSION 5: TB-IPC AMONG HEALTHCARE WORKERS

Background of this session

HCWs have a higher risk to be infected by TB than the general population. TB-IPC is therefore very important for HCWs so that they know about the risks for TB infection and how they can prevent these risks. In this session, invite the participants to share their fears of TB Infection, discuss the real risks and what HCWs and hospital management can do to create a safe working environment.

Duration:

60 minutes

Objectives:

By the end of this session the participants are able to:
– Present the risks of TB infection for HCWS
– Educate their colleagues on how to prevent transmission of TB infection
– Advocate for safe working conditions.

Methodologies:

Group work and plenary sharing.

Materials needed:

PPT slides
TB-IPC Guidelines
Flip charts
Markers.

TRAINING PROCESS

Step 1: Introduction of the session (20 minutes)

Introduce the session objectives.

Subgroup work (15 minutes)
Participants discuss in subgroups:
1. What are your fears about TB as a HCW?
2. What do you do to protect yourself?
3. What could your hospital management do to protect you more?

Step 2: HCWs' risk of getting TB (10 minutes)

Ask participants to share some of their fears of being infected with TB.
Discuss the facts: What are the risks of HCWs being infected with TB, and present the TB incidence among HCWs in Bangladesh.

Step 3: What can HCWs do to protect themselves? (15 minutes)

Ask the participants to share the results of the subgroup work on this topic.
Write these results on a flip chart and summarize with a PPT slide.

Step 4: What can hospital management do to protect HCWs? (10 minutes)

Ask the participants to share the results of the subgroup work on this topic.
Write these results on a flip chart and add where needed.
Summarize with a PPT slide.

Step 5: Key messages (5 minutes)

Ask the participants to share the key messages of this session.

BACKGROUND INFORMATION FOR THE FACILITATOR

Step 1: Introduction of the session

Briefly introduce this session.
Let the participants work in subgroups to discuss their fears and possible measures to prevent infection.
The results of the subgroup work will be used in the next steps:
1. "What are your fears about TB as a HCW?" Include the answers in step 2.
2. "What do you do to protect yourself?" Include the answers in step 3.
3. "What could your hospital management do to protect you more?" Include the answers in step 4.

Step 2: HCWs' risks of being infected with TB

First ask the participants about their fears. (Question 1)
How realistic are these fears? What are the facts?

A. HCWs have a higher risk of TB infection because they:
- Have frequent and direct contact with TB patients who are not yet on treatment
- Have contact with patients when TB infection is not known
- Work with sputum.

Other risk factors could be:
- Working in a poorly ventilated/congested environment
- Absence of clear TB-IPC SOPs
- Lack of awareness/knowledge of TB-IPC
- Extra risks for HCWs with diseases affecting the immune system (e.g. HIV).

B. What is the TB incidence among HCWs in Bangladesh?
The definition of the TB disease incidence rate among HCWs is:

$$\frac{\text{The number of HCWs who develop TB in one year in Bangladesh}}{\text{The total number of HCWs during that same year working in TB control in Bangladesh}}$$

Discuss the following with the participants:
- Do we know the TB disease incidence among HCWs in Bangladesh?
- Do we know the TB disease incidence in our health facility?
- Do we want to know this? If yes: why?

Step 3: What can HCWs do to protect themselves?:

- Ensure there is appropriate ventilation in the workplace
- Arrangement seating in doctor's room to allow for appropriate air flow (from the patients to the window and not into the face of the HCW)
- Wear masks when they are in contact with DR-TB patients who are still infectious
- Follow the TB-IPC SOPs, and give feedback to their colleagues when necessary. Together HCWs can create a safe working environment.
- Be informed about TB and TB-IPC and the need to inform each other. TB-IPC alertness is needed among the HCWs.
- Be informed about the signs and symptoms of TB and the need for early care seeking
- Advocate for appropriate TB-IPC in your hospital. The most important measures are the administrative and environmental measures.

Step 4: What can hospital management do to protect HCWs?:

- Provide training/health education for HCWs
- Have a budget for appropriate infrastructure, good ventilation, masks, UVGI
- Space beds appropriately; so that patients are not too close to each other
- Screening: Periodic screening of staff at risk, keep a screening register, develop a notification system
- Develop a TB-IPC plan for the hospital.

Step 5: Key messages:

1. HCWs have a higher risk of TB Infection (Occupational risk)
2. HCWs can protect themselves
3. The hospital management must invest in a safe working environment and the screening of HCWs.

EVALUATION OF THE DAY

Background of this session

The session allows the participants to reflect on what they have learned during the day and which learning questions they still have. This reflection will help the participants to remember what they have learned and reinforce their learning.

Duration:

15 minutes

Objectives:

By the end of this session the participants have assessed what they have learned so far and have identified the remaining learning questions.

Methodology:

Tell the participants that at the end of the day it is important to reflect on what they have learned and what their remaining questions are.

Invite the participants to answer the questions in their participants' manual:
1. What are the three most important things you have learned?
2. What TB-IPC practices do you want to change in your hospital?
3. What questions do you still need to be answered?
4. Do you have any suggestions for the facilitators?

Use the last 5 minutes to share some of the answers to questions 3 and 4.

Materials needed:

Participants' Manual

DAY 2

RECAP AND INTRODUCTION OF THE DAY

Background of this session
The session is the link between the first and the second day of the course. The recap activates participants' memory and allows them to be fully in the course again.

After the recap you will introduce the course and motivate the participants for this second day of the course.

Duration:
30 minutes

Methodology:
Quiz
Participants' manuals are closed during the quiz.
Participants work in groups, answer the questions and count their scores.

Present the question on a PPT slide and give the participants enough time to write down their answer. Show the correct answer on the PPT slide. The questions and answers can both be found on the next page.

For every correct answer the group receives one point. The group with most points receives a prize (e.g. chocolate, cookies).

Materials needed:
PPT slides with the questions and answers for the quiz
Prize for the winning team.

Questions and answers
1. What does TB-IPC stand for?
Answer:
Tuberculosis – Infection Prevention and Control

2. Why are young children visiting an overcrowded OPD with coughing TB patients at high risk of infection?
Answer:
  – Children have a low immune status
  – The concentration of infectious droplet nuclei in the air is high, because there are infectious patients present
  – Because of the overcrowding the potential sources of infection are close by.

3. Which TB-IPC measures are most effective: Managerial, Administrative, Environmental or Personal Protection (maximum of two)
Answer: Administrative and Environmental

4. "Separate infectious patients" is a _____ control measure?
Answer:
Administrative.

5. What should be done with the results of the "Health facility TB-IPC risk assessment"
Answer:
Develop a TB-IPC plan for the health facility

6. How is triage done?
Answer:
  – Identify patients with a cough entering the health facility
  – Direct them to the sputum collection area to produce sputum

7. Give three reasons why HCWs are at a higher risk of TB Infection than the general population.
Answer:
  – Frequent contact with TB patients who are still infectious
  – Direct contact with patients where the TB infection is not known
  – Work with sputum

SESSION 6: THE FAST STRATEGY

Background of this session
The FAST strategy is a TB Infection Control strategy that aims to find TB patients as soon as possible and treat them effectively. The FAST strategy includes mainly administrative TB-IPC measures. FAST has been implemented in some hospitals in Bangladesh. This session aims to introduce FAST.

Duration:
90 minutes

Objectives:
By the end of this session the participants are able to:
– Explain the FAST strategy to their team members
– Discuss FAST implementation in their facility.

Methodologies:
Plenary presentation, Q&A and group work.

Materials needed:
Brochure: FAST a Tuberculosis Infection Control Strategy, USAID, TB CARE II PPT slides.
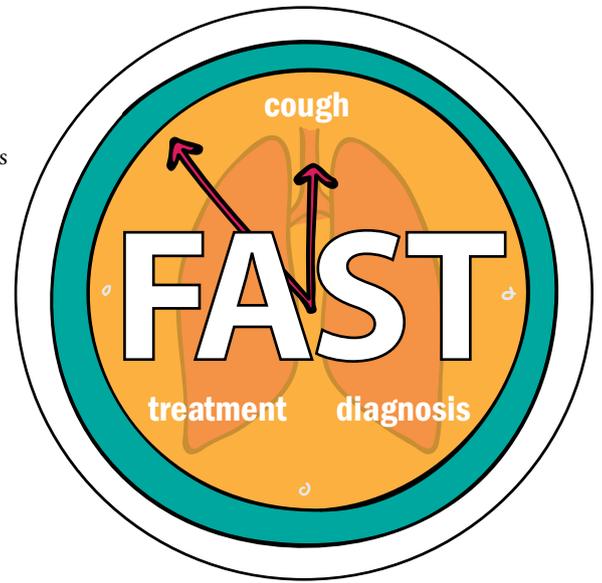
TRAINING PROCESS

Step 1: Introduction of the session and FAST (30 minutes)

Present the session objectives.
Introduce the FAST strategy: First ask if participants have any experience with FAST or have heard about FAST.
Give a plenary presentation with PPT slides on FAST:
– What does FAST stand for?
– What is the purpose of FAST?
– Examples of FAST implementation in Bangladesh
– SOPs to implement FAST
– What makes FAST different?

Step 2: Implementing FAST in your health facility (50 minutes)

In groups per health facility participants discuss (20 minutes)
"Would you like to introduce FAST in your facility?, Why or why not?"
Facilitate a plenary sharing and discussion about the group results.
Summarize the results of the plenary discussion.

Step 3: Key messages (10 minutes)

Invite the participants to present the key messages.

BACKGROUND INFORMATION FOR THE FACILITATOR

Step 1: Introduction of the session and FAST

1. What does FAST stand for:
   a. Finding TB cases
   b. Actively
   c. Separating safely and
   d. Treating Effectively.

2. What is the purpose of FAST:
To reduce TB or DR-TB transmission in congregate settings.

3. Examples from Bangladesh:
   a. Give some examples of the implementation of FAST at NIDCH, BIRDEM and Chittagong
   b. The results
   c. How FAST was implemented.

4. Standards Operating Procedures to implement FAST:
   – A cough surveillance officer is present at each entry point to the health facility
   – The cough surveillance officer moves the coughing patient to a designated well-ventilated area
   – The cough surveillance officer explains the patients why this is done
   – The patient is tested as quickly as possible by a rapid testing method
   – Any patient that is diagnosed for TB start as quick as possible on TB treatment
   – The time intervals for each step are defined and monitored/collected:
   a. Patient entering the facility to cough detection
   b. Cough detection to sputum collection
   c. Sputum collection to lab receipt
   d. Lab receipt of the specimen to lab results available
   e. Lab results available to lab results received
   f. Lab results received to effective treatment.

5. What makes FAST different?
FAST is a focused TB transmission control strategy through rapid diagnosis and effective treatment (= administrative controls).

In the FAST strategy the patient should be tested for TB by a rapid testing method, preferably GeneXpert.

The time intervals for each step in the diagnosis and treatment are documented and monitored. These data are used to evaluate the "fast tracking and treatment" of the patient and to agree on improvements.

Step 2: Implementing FAST in your health facility

Participants read "FAST, a Tuberculosis Control Strategy" pages 4 – 8
Teams choose for the setting of their hospital (general medical setting, TB setting)

Group work: Would you like to introduce FAST in your facility? Why? or why not?

Step 3 Key messages

   – FAST is a TB-IPC strategy to find TB patients actively and treat them effectively.
   – Monitoring of time intervals (from entry to diagnosis and from diagnosis to treatment) is an essential part of FAST.
   – FAST can only succeed when all the hospital staff participate (staff at the reception, cough monitor, laboratory staff, nurses and doctors).
   – If you want to start FAST in your hospital, contact hospitals that have already piloted FAST to learn from their experiences.

Additional information

On the next pages you will find a FAST Facility self-assessment tool and a FAST reporting format, to monitor and evaluate FAST implementation.

Facility (Self)-Evaluation Tool

Instructions: This form is used by the Facility TB-IPC focal person to assess FAST implementation every month. Use the questions as guidance for your discussion with the healthcare workers who implement FAST. Provide a summary of the discussion and the agreed actions and comments. Maintain for record keeping.

Date:	Department:	Name of FAST focal Person:

1	Observations and Actions on Triage of outpatients

2	Observations and Actions on Triage of inpatients

3	Observations and Actions on Fast-tracking/Separation of patients

4	Observations and Actions on sputum collection and transportation (if applicable)

5	Observations and Actions on laboratory investigations

6	Observations and Actions on the correct and complete use of registers

7	Observations and Actions on time to diagnosis and treatment

8	Observations and Actions on the detected numbers and percentages of presumptive TB and TB cases compared with other months, targets

9	Any other Observations and Actions

10	Any questions for technical support

Source: FAST a Tuberculosis Infection Control Strategy, Federal Ministry of Health, Department of Public Health, National Tuberculosis and Leprosy Control Programme, Nigeria

Reporting Format

INDICATOR	# Same Day	# Next Day	# 3-5 Days	# >5 Days	Total #
Name of the Health Facility:					
Month and Year of reporting:					
1. Time to TB diagnosis					
2. Time to TB treatment					
3. Time to DR-TB diagnosis					
4. Time to DR-TB treatment					
5. Total number of outpatients					
6. Total number of inpatients					
7. Number of presumptive TB patients					
8. Number of TB patients diagnosed					
8. Number of TB patients started on Rx					
9. Number of TB patients referred elsewhere					
10. Number of presumptive DR-TB patients					
11. Number of DR-TB patients diagnosed					
12. Number of DR-TB patients started on Rx					
13. Number of DR-TB patients referred elsewhere					

Short narrative report with relevant information extracted from the Facility self-evaluation form:

Name of reporting officer:_____Date of submission:_____/ _____/20

Source: FAST a Tuberculosis Infection Control Strategy, Federal Ministry of Health, Department of Public Health, National Tuberculosis and Leprosy Control Programme, Nigeria

Defining the indicators
1. Time to diagnosis = Time between the day the patient meets the HCW and the day the patient receives the diagnostic result
2. Time to treatment = Time between the day the patient diagnosed as a TB case and the day of treatment initiation
3. Time to DR-TB diagnosis = Time between the day the patient meets the HCW and the day the patient receives the DR-TB diagnostic result
4. Time to DR-TB treatment = Time between the day the patient diagnosed as DR-TB case and the day of DR-TB treatment initiation
5. Total number out-patients = Total number of out-patients in this health facility in the reporting period
6. Total number in-patients = Total number of hospitalized patients in this health facility during the reporting period
7. Number presumptive TB patients = Total number of presumptive TB patients during the reporting period.

Reporting procedure:
   – Report written by the facility (TB)-IPC focal person, based upon the self-assessment results.
   – Report sent quarterly to the IPC focal person at the NTP.

SESSION 7: TB-IPC HEALTH EDUCATION

Background of this session

Patients, visitors at the health facility and HCWs need to be informed about the risks of TB Infection, how to prevent TB Infection and what they can do themselves to prevent TB Infection. Different Information Education and Communication (IEC) materials are available to support health education. In this session the participants will use these IEC materials to practice TB-IPC health education.

Duration:

90 minutes

Objectives:

By the end of this session the participants are able to:
– Present the TB-IPC health-education materials, the key messages and the target groups
– Use the health education materials to give TB-IPC health education.

Methodologies:

Group work, plenary sharing and health education role-play.

Materials needed:

Health education materials: For every facility at least one set of all the available materials.

TRAINING PROCESS

Step 1: Introduction of the session (10 minutes)

Introduce the session objectives.
Ask "Which TB-IPC health education materials are available in your health facility"? List the participants' answers on a flip chart.

Step 2: Health education materials (30 minutes)

Present the TB-IPC health education materials (posters, brochures) that are available in Bangladesh and link this to the education materials listed by the participants.

Group-work (1) (15 minutes)

Divide the health education materials among the groups.
Participants read the health education materials and answer the following questions:
  – Who is the target audience for this brochure/poster?
  – What is the TB-IPC message of this brochure/poster?

Plenary: Every group presents their group work results.
Other participants and facilitator add where necessary.

Step 3: Give TB-IPC health education (40 minutes)

Group-work (2) (10 minutes)
In the same groups the participants prepare a health education session, for the target audience chosen, making use of the brochure/poster they have discussed. One group member volunteers to give the health education in plenary
Plenary: (30 minutes)

Every group gives a 5 minute health education session.
Ask the other participants to observe. Discuss, after each health education session "Did the message come across?
Share positive feedback and points for improvement.

Step 4: Ensure health education in your health facility (10 minutes)

In plenary discuss:
1. Who will be responsible for the TB-IPC health education
2. How to get health education materials for your facility.

BACKGROUND INFORMATION FOR THE FACILITATOR

Step 1: Introduction of the session

Introduce this session by telling the participants that TB-IPC health education is essential to increase awareness and inform about safe practices. Target groups are: patients, TB patients and their family members, health care workers and the community (where people live/work)

Step 2: Health education materials

The TB-IPC health education materials available in Bangladesh are:
1. Leaflet - Cough etiquette leaflet
2. Infection control - Poster
3. Flip Chart: MDR-TB
4. TB Poster.

Group work (1)
Your group has one or two health education materials
Discuss the questions below:
1. Who is the target audience for this brochure/poster?
2. What is the TB-IPC message?

Present the health education materials and the results of your group work in plenary.

Health education materials to be used for TB-IPC health education

Cough Etiquette Leaflet

সাধারণ কিছু নিয়ম মেনে যক্ষ্মারোগের প্রতিরোধ গড়ুন

হাঁচি-কাশির সময় রুমাল বা টিস্যু ব্যবহার করুন অথবা হাত দিয়ে মুখ ঢেকে রাখুন অথবা মুখ একপাশে ঘুরিয়ে নিন

ব্যবহারের পর রুমাল ধুয়ে ফেলুন অথবা টিস্যু নির্দিষ্ট জায়গায় ফেলুন

হাঁচি-কাশি দেওয়ার পর সাবান দিয়ে হাত ধুয়ে ফেলুন

কফ, থুথু নির্দিষ্ট পাত্রে ফেলার অভ্যাস করুন

ঘরে পর্যাপ্ত আলো-বাতাসের ব্যবস্থা রাখুন

যক্ষ্মারোগে আক্রান্ত হলে পূর্ণমেয়াদে চিকিৎসা নিন

নিয়ম মেনে চলুন যক্ষ্মা থেকে দূরে থাকুন

USAID
আমেরিকার জনগণের পক্ষ থেকে

TB CARE II
BANGLADESH

Infection Control Poster

Flip chart: prevent the spread of TB

যক্ষ্মা রোগের চিকিৎসায় পূর্ণমেয়াদে ঔষধ খেতে হবে, তা নাহলে আপনি ঔষধ প্রতিরোধী জটিল যক্ষ্মায় আক্রান্ত হতে পারেন যার চিকিৎসা দীর্ঘমেয়াদি এবং ব্যয়বহুল।

নিয়মিত পূর্ণমেয়াদের চিকিৎসায় যক্ষ্মা সম্পূর্ণ ভালো হয়

Regular treatment with anti TB drugs

Health Education Material	Target Audience	TB-IC Message
Cough etiquette leaflet	TB Symptomatic, Outdoor Patients	Follow some rules during coughing and sneezing to prevent TB infection
Infection control Poster	TB symptomatic, DR-TB Patients	How can we prevent the spread of TB infection?
Flip chart: DR-TB	DR-TB Patients, TB Symptomatic Patients	Appropriate treatment, cough etiquette and masks to prevent TB and DR-TB infection
Regular treatment with anti-TB drugs Poster	TB and DR-TB patients	Complete and regular intake of adequate anti-TB drugs cure TB

Step 3: Give TB-IPC health-education (40 minutes)

Group work (2)
Prepare a health education session, making use of the brochure/poster discussed before.

Define together:
 – Who is the target audience? Is this an individual or a group?
 – Where does the health education take place: At the health facility, at the patient's home?
 – Will you sit or stand?

Ask one group member to volunteer to give the health education in plenary.

Set the stage
Invite a participant to give the health education.

Ask this participant:
 – Who is the target audience for this health education?
 – Is it a group or an individual?
 – Where does the health education take place?

Tell the other participants who will be part of the target audience and who will be observer.

Create a space where the health education can take place.

HCW giving health education to a TB patient

Evaluation of the health education session
After each health education session, invite the participants to evaluate the session. Start with the target audience, then the health educator and finally the observers.

Follow these questions for the evaluation:
    a. Is the message clear for the target audience?
    b. Did the health educator make use of the health education materials?
    c. What improvements do you suggest?

Step 4: Ensure health education in your health facility

1. Who will be responsible for the TB-IPC health education?
Differentiate between:
– The people who give the health education (nurses, doctors, receptionists, community volunteers)
– The person in your facility who is responsible for health education.

This may be a nurse, a social worker, the health education officer etc. The designated person needs to monitor whether health education is provided (correctly), mentor/train staff and ensure that the health education materials are available and accessible.

2. How do you get health-education materials?
Inform participants where they can get these materials, what the costs are etc. If possible distribute the materials, allowing the participants to being using them.

SESSION 8: PERSONAL PROTECTION

Background of this session
This session will go more in depth into personal protection measures, focusing mainly on masks for HCWs and patients.

Duration:
60 minutes

Objectives:
By the end of this session the participants are able to:
– Inform their colleagues about the use of masks for TB infection control.
– Put on the N95 mask.

Methodologies:
Plenary presentation with Q&A, demonstration and practice.

Materials needed:
Surgical masks (to show the participants)
N95 masks (for all participants)
PPT slides

TRAINING PROCESS

Step 1: Introduction of the session and the masks (20 minutes)

Introduce the session objectives.

Ask participants about their experiences with masks:
1. Do they provide masks in their health facility?
2. To whom?
3. What kind of masks?
4. Do they feel comfortable wearing a mask?

Give a short presentation about surgical and N95 masks: The protection these masks give, and when and by whom these masks should be worn.

Step 2: Wearing the respirators (15 minutes)

The facilitator demonstrates how to put N95 masks on.
In pairs the participants practice putting on the N95 mask. The facilitator observes and supports the participants when needed.

Step 3: Do masks/respirators increase stigma? (15 minutes)

Discuss in plenary:
  – Do masks increase stigma?
  – How can we address this?

BACKGROUND INFORMATION FOR THE FACILITATOR

Step 1: Introduction of the session and the masks

Type of mask	Costs	Aims to	Filter efficiency	For whom	When to use
Surgical masks	10 BDT	Reduce the spread of microorganisms from the wearer. (They do not provide protection from inhaling small infectious aerosols)	50%	Patients who cough	In public spaces
N95 masks	130 BDT	Protect the wearer from inhaling small infectious aerosols	95%	HCWs (including laboratory staff) working with infectious TB/ MDR-TB patients	When there is close contact with patients inside the hospital who are still infectious. For laboratory staff working with sputum

Refer the participants to detailed information in the factsheet "N95 respirators and surgical masks for TB Infection Control", in the Participants' Manual.
You can find this factsheet at the end of this section.

Step 2: Wearing respirators

On the next page you find the instructions to put on the N95 masks (Source: Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care, WHO Guidelines 2014. More instructions are in the National TB-IC Guidelines (2011), Annex 17.

Be alert:
- Take of your glasses when putting on the mask.
- Facial hair impedes good fit and decreases the effectiveness of the mask.
- Masks can only be assigned to a single individual and cannot be shared with others.
- Life span of the N95 mask: Can be used for several weeks, however proper fitting may decrease with frequent wearing. They may be used by the same person as long as they don't become moist and the straps have not lost their elasticity. Before each use the outside material of the filter should be inspected. If the filter material is physically damaged or soiled, or if the straps are slack, the respirator should be discarded.
- Proper storing: Store in a clean and dry location (hang it on the wall at room temperature and write the date that you started using it). A second option: Fold a tissue around the respirator (being careful not to crush it) with your name and the date that you started using it.
- Don't put the respirator in a plastic bag, it may be damp after use and a plastic bag prevents drying and encourages microbial growth.

How to put on the N95 mask

Source: Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care, WHO Guidelines 2014.
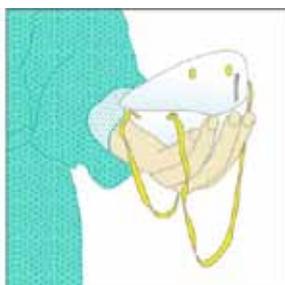
1 Cup the respirator in your hand with the nosepiece at your fingertips allowing the headbands to hang freely below your hand.

2 Position the respirator under your chin with the nosepiece up.

3 Pull the top strap over your head resting it high at the back of your head. Pull the bottom strap over your head and position it around the neck below the ears.

4 Place fingertips of both hands at the top of the metal nosepiece. Mould the nosepiece (USING TWO FINGERS OF EACH HAND) to the shape of your nose. Pinching the nosepiece using one hand may result in less effective respirator performance.

5 Cover the front of the respirator with both hands, being careful not to disturb the position of the respirator.

5A Positive seal check	5B Negative seal check
- Exhale sharply. A positive pressure inside the respirator = no leakage. If leakage, adjust position and/or tension straps. Retest the seal. - Repeat the steps until respirator is sealed properly.	- Inhale deeply. If no leakage, negative pressure will make respirator cling to your face. - Leakage will result in loss of negative pressure in the respirator due to air entering through gaps in the seal.

Source: Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care, WHO Guidelines 2014.

Step 3: Masks/respirators and stigma

Do masks/respirators increase stigma?
Ask the participants about their experiences.
How do they react when they see somebody with a mask?
How are HCWs with respirators perceived by patients?

Tell the participants that people stigmatize other people because of fear, a lack of information or misconceptions.

Stigma can lead to exclusion of TB patients, or TB patients who avoid telling or showing that they have TB, which can lead to increased transmission.

How can stigma be addressed?
  – Inform patients and HCWs about TB and the purpose of masks/respirators
  – Tell them why you wear a respirator.

Factsheet
N95 respirators and surgical masks for TB infection Control
Sources: "Implementing the WHO Policy on TB Infection Control", "Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care, WHO Guidelines 2014, "Respiratory protection guidelines for KNCV Tuberculosis Foundation Staff, 2014"

যক্ষ্মা রোগী এবং তার পরিবারের সদস্যদের জন্য সেবাদানকারীর করণীয় কী?

HCW with a N95 respirator and TB patients with a surgical mask.

Introduction
When used with administrative and environmental controls, particulate respirators may provide HCWs additional protection from TB. Respirators and masks are NOT a substitute for administrative and environmental controls.

N95 respirators
N95 respirators can act as filters, to capture infectious particles and prevent them from being inhaled. In this way, infection with TB can be prevented. For effective protection against TB infection, respirators should filter out at least 95% of particles of at least 0.3 micrometers ("microns") in size. The respirators used should meet or exceed the United States National Institute for Occupational Safety and Health (NIOSH) certified N95 standards.

Who should use N 95 masks?

HCWs should use N95 respirator/masks in specific high-risk areas:

- Inside the health facility: when dealing with patients with presumed (DR-) TB and patients with confirmed pulmonary TB/DR-TB who are still infectious.
- When working in TB culture and DST laboratories.

Instructions for the proper wearing of N95 masks:

- Masks can only be assigned to a single individual and must not be shared with others. The mask should fit the user. Don't write the staff member's name on the mask, it will destroy the filter.
- It is helpful to write the staff member's name on the mask.
- Take of your glasses when putting on the mask.
- Facial hair impedes good fit and decreases the effectiveness of the mask.
- The N95 mask can be used for several weeks, however the fit quality may decrease with frequent wearing.
- They may be used for 1–2 weeks as long as they don't become moist and the straps have not lost their elasticity. The outside material of the filter should be inspected, before each use.
- If the filter material is physically damaged or soiled, or if the straps are slack, the respirator should be discarded.
- Store the mask properly: in a clean and dry location (hang it on the wall at room temperature and write the date that you started using it). A second option: Fold a tissue around the respirator (being careful not to crush it) with your name and the date that you started using it.

Fitting an N95 respirator

A respirator will provide no protection if it is not properly fitted, as air will flow through 'gaps' between the mask and the wearer's skin. Qualitative fit-tests could be done when selecting the type of mask that your facility uses as variability in facial structure can mean that different types of masks fit better. Any facial hair, such as beards or long sideburns, may prevent the respirator from fitting properly. An informal way to test the fit of your respirator is as follows:

- Fit the respirator according to manufacturer's instructions.
- Once the respirator is in place, inhale sharply. The respirator should be drawn in towards your face, indicating that a negative pressure has been generated.
- If the respirator does not draw in towards your face, or you feel leakage at the edges, adjust straps by pulling back along the sides and/or reposition respirator.
- Repeat until respirator is sealed properly.

Surgical masks

A surgical mask is not a respirator. Masks are provided to TB patients to limit the spread of droplets or droplet nuclei during coughing or sneezing. These masks do not protect the wearer from inhaling small infectious aerosols.

SESSION 9: TB-IPC IMPLEMENTATION PLAN

Background of this session
In this session all the insights in TB-IPC in their facility will be used to develop the TB-IPC plan for their health facility. This is a real plan that will be implemented at the facility level, so that this course will lead to real TB-IPC improvements at the facility level.

Duration:
90 minutes

Objectives:
By the end of this session the participants:
– Have developed a draft TB-IPC plan for their hospital
– Agree on what needs to be done to get the plan implemented
– Agree on how to monitor the implementation of this plan.

Methodologies:
Plenary presentation, group work and presentations.

Materials needed:
PPT slides.

TRAINING PROCESS

Step 1: Introduction of the session (5 minutes)

Introduce the session objectives.

Ask participants:
1. Does your health facility have a TB-IPC plan?
2. Who needs to develop the TB-IPC plan
3. Who is responsible for the implementation of the TB-IPC plan?

Conclude:
1. TB-IPC plan is part of the general IPC plan
2. TB-IPC plan must be developed by a multi-disciplinary team
3. The IPC focal point is responsible for development, implementation and M&E of the plan.

Step 2: TB-IPC plan (15 minutes)

The TB-IPC plan is based on:
– The results of the TB-IPC risk assessment
– The services provided by the health facility (Reference to annex 1 in the National Guidelines for TB-IC).

Walk the class through the TB-IPC plan format, and give examples on how to fill it in.
Introduce the group work: The health facility teams develop their TB-IPC plan and give a five minute plenary presentation.

Step 3: Develop the TB-IPC plan (40 minutes)

The health facility teams develop their TB-IPC plan and prepare the five minute presentation.

Step 4: Presentation and feedback (30 minutes)

Every team gives a five minute presentation, followed by questions and feedback from participants and facilitators.
After all the presentations the facilitator presents the steps to finalize and begin the implementation of the TB-IPC plan at facility level, and how national level staff will supervise/mentor them.

BACKGROUND INFORMATION FOR THE FACILITATOR

Step 1: Introduction of the session

TB-IPC must be part of the general IPC, and the IPC focal person must take the responsibility for TB-IPC and include hospital management to ensure human and financial resources for TB-IPC.
The NTP can give technical support for TB-IPC.

Step 2: The TB-IPC plan

The TB-IPC template is presented on the next page.
Walk through the template so that participants fully understand, and some examples on how to fill this template in.

Example: how to fill in the TB-IPC planning template

MANAGERIAL					
Activities (what and where)	Estimated Cost	Who is responsible	When will this be implemented		
			Start	End	On going
TB-IPC plan developed and approved as part of the general IPC plan	NA	IPC-focal person	April 2016	15 May 2016	
TB-IPC posters on the wall of doctors' rooms, laboratory and OPD waiting rooms	NA	TB-IPC focal person	April 2016		X

ADMINISTRATIVE					
Activities (what and where)	Estimated Cost	Who is responsible	When will this be implemented		
			Start	End	On going
Create sputum collection area outside the DOT clinic	100 US$	Hospital management	May 2016	June 2016	

Connect the plan to the TB-IPC risk assessment that was done on day one:
 – The main gaps need to be addressed
 – Continue with what is already in place and need to be continued.

Refer to Annex 1 of the National Guidelines: The TB-IPC plan also depends on the services provided by the health facility.

Group work: TB-IPC plan for your health facility (40 minutes)
Start developing the TB-IPC plan for your health facility. Make use of the IPC risk assessment that you made yesterday.
Prepare a five minute plenary presentation to inform your colleagues on:
 – The three priority activities
 – Why these are priority for your health facility
 – What you need to finalize this plan.

TB-IPC plan

Every health facility needs a TB-IPC plan, which will be part of the overall facility IPC plan.
The TB-IPC plan guides the implementation, monitoring and evaluation of TB-IPC activities. The TB-IPC risk assessment will guide the prioritization of the activities.

Facility: _____
Name and designation of the TB-IPC focal person: _____
Year: _____

MANAGERIAL					
Activities (what and where)	Estimated cost	Who is responsible?	When will this be implemented?		
			Start	End	On going

ADMINISTRATIVE					
Activities (what and where)	Estimated cost	Who is responsible?	When will this be implemented?		
			Start	End	On going

ENVIRONMENTAL					
Activities (what and where)	Estimated cost	Who is responsible?	When will this be implemented?		
			Start	End	On going

PERSONAL PROTECTION					
Activities (what and where)	Estimated cost	Who is responsible?	When will this be implemented?		
			Start	End	On going

Step 3 : Develop the TB-IPC plan

The teams fill in the template starting with what is priority in their facility. The presentation for the plenary will focus on the priority actions and why these are a priority in their setting. Give guidance to the teams where needed.

Step 4: Presentation and feedback

The teams present the highlights of their TB-IPC plan. Presenting their plan will empower them, and will make the plan more concrete.

Items for feedback are:

1.	Is the team clear on the priority setting?
2.	Is the team certain about the activities?

SESSION 10: EVALUATION OF THE COURSE

Duration:
30 minutes

Objectives:
By the end of this session the participants have evaluated their own learning and the training course.

Methodologies:
Fill in the evaluation form and plenary sharing.

Materials needed:
Evaluation form

TRAINING PROCESS

Step 1: Introduction (5 minutes)

Explain the purpose of this evaluation to the participants, and give some instructions on the evaluation form.

Step 2: Fill in the form (15 minutes)

The participants fill in the form.

Step 3: Plenary round table (10 minutes)

Give the participants the opportunity to give feedback.

BACKGROUND INFORMATION FOR THE FACILITATOR

Evaluation form: TB-IPC Training Course

Date: _____

How do you rate the training course program?
(4= Excellent, 3= Very good 2= Satisfactory 1= Not satisfactory)

A: EVALUATION OF THE SESSIONS

Session	Score	Remarks/Suggestions
Day 1		
Session 1: Welcome and introduction		
Session 2: Basics of TB infection and transmission control		
Session 3: TB-IPC risk assessment		
Session 4: Administrative and environmental controls		
Session 5: TB-IPC among HCWs		
Day 2		
Session 6: The FAST strategy		
Session 7: TB-IPC health education		
Session 8: Personal protection		
Session 9: TB-IPC implementation plan		

B: LEARNING RESULTS

Overall goal: By the end of this training course the participants are able to develop, implement the TB-IPC plan for their health facility and monitor compliance with TB-IPC standards

1.   Are you able to develop and implement the TB-IPC plan for your health facility? Put a X in box: Yes ☐ No ☐
2.   If no: what support do you need to develop and implement this TB-IPC plan?
3.   What are the three most important things you have learned?

C. METHODOLOGY

How do you rate the quality of this training course on the following topics:

(4= Excellent, 3= Very good, 2= Satisfactory, 1= Not satisfactory)

Topic	Score	Remarks/suggestions
Training materials		
Duration of the training course		
Facilitators		
Methodology		
Group composition		

D. LOGISTICS AND ORGANIZATION

How do you rate the logistics and organization of the training course program?

(4= Excellent, 3= Very good, 2= Satisfactory, 1= Not satisfactory)

Topic	Score	Remarks/suggestions
Venue		
Information before the start of the training course		

REFERENCES AND FURTHER READING

1. National Guidelines for Tuberculosis Infection Control, Bangladesh (2011)
2. WHO Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households (2009)
3. Implementing the WHO Policy on TB Infection Control, TB CARE I (2010)
4. Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care, WHO Guidelines (2014)