9. Glossary and Abbreviations

Bacille Calmette-Guérin (BCG) vaccine: A live vaccine against TB derived from an attenuated strain of *Mycobacterium bovis*.

Disinfection: A process of reducing microbial load without complete sterilization. Disinfection refers to the use of a physical process or chemical agent to destroy vegetative pathogens, but not bacterial spores.

Droplet nuclei: Microscopic particles that are estimated at 1-5 microns in diameter and are produced when a person coughs, sneezes, shouts or sighs. Such particles may remain suspended in the air for hours.

Environmental control measures: Measures that can be used in high-risk areas to reduce the concentration of droplet nuclei in the air (e.g., maximizing natural ventilation or controlling the direction of airflow).

Exhaust ventilation: An efficient environmental control technique (e.g. laboratory hoods, tents, booths, ventilation device) to contain airborne particles near the source before they can disperse widely into the air.

Facemask: A cloth or paper mask (e.g. surgical mask) that prevents the spread of micro-organisms from the wearer to others by capturing the large wet particles near the source (mouth); it does not provide sufficient protection from inhaling airborne infectious though.

Health care associated infection (nosocomial or hospital-associated infection): An infection acquired in a health care facility by a health care user, health care worker, or a visitor to a health care facility, who was in the facility for a reason other than that infection. Such an infection should have neither been present nor incubating at the time of admission or at the time when the initial contact with the health care facility was made. This includes infections acquired in the hospital, but appearing after discharge, including any infection in a surgical site up to six weeks post operatively. Also included are occupational infections among staff of the facility.

Health care workers: A group of people that includes nurses, physicians, nursing and medical students, laboratory workers, counsellors, and others who work in health care facilities and may be exposed to patients with communicable diseases.

HIV: Human immunodeficiency virus, the causative agent of AIDS.

Infection with *M. tuberculosis*: The sub-clinical, latent infection with the organisms that cause TB, manifested by a positive tuberculin skin test, but without clinical evidence of disease.

Infection prevention and control: Specific measures and work practices that reduce the likelihood of transmitting *M. tuberculosis*.

Infection Prevention and Control Committee: A multidisciplinary committee that deals with infection prevention and control issues. Each member of the committee makes inputs as they relate to his /her discipline in order to share information and to cooperate. The committee is made up of medically trained microbiologists, clinicians, management representatives, and other health care workers representing, pharmacy, sterilizing service, housekeeping and training services.

Infection Prevention and Control Programme: A comprehensive programme that encompasses all aspects of infection prevention and control, covering education & training, surveillance, environmental management, waste management, outbreak investigation, development and updating of infection prevention and control policies, guidelines and protocols, cleaning, disinfection and sterilization, employee health, and quality management in infection control.

Infection Prevention and Control Team: The team of health care workers involved in carrying out the day-to-day infection prevention and control programme activities.

Isolation room: A single patient room with negative pressure ventilation where an infectious TB patient can be isolated from other patients.

Mechanical ventilation: Methods used to direct airflow to dilute and remove air, and to produce negative pressure in isolation rooms (e.g. window fan, and exhaust ventilation systems).

Medical devices: All equipment, instruments and tools, used in health care for diagnosis, prevention, monitoring, treatment or rehabilitation. Devices could thus include products such as contact lenses, condoms, heart valves, hospital beds, resuscitators and radiotherapy machines, surgical instruments and syringes, wheelchairs and walking frames, etc.

Multidrug-resistant tuberculosis (MDRTB): TB caused by strains of *M. tuberculosis* that are resistant to both Isoniazid and Rifampicin with or without resistance to other drugs.

Mycobacterium tuberculosis: The bacterium that causes TB.

Natural ventilation: Defined as natural air movement to achieve dilution and air exchange in an area with free-flow of ambient air (e.g. through the open windows).

PMTCT: Prevention of mother-to-child transmission of HIV infection.

Personal protective equipment: This refers to items specifically used to protect the health care worker from exposure to body substances or from droplet or airborne organisms. Personal protective equipment includes gloves, aprons, gowns, caps, masks and protective eye wear.

Respirators: A special type of closely fitted mask with the capacity to filter particles 1 micron in size to protect from inhaling infectious droplet nuclei.

Risk management: All the processes involved in identifying, assessing and judging risks, assigning ownership, taking actions to mitigate or anticipate them, and monitoring and reviewing progress.

Smoke tubes: Devices used to monitor proper airflow direction and to determine the correct function of ventilation systems.

Sterilisation: A process that destroys or removes all viable micro-organisms, including spores. Sterilisation can be achieved by the use of heat, stream, gas or chemicals.

Tuberculin skin testing (TST): Intracutaneous injection of purified protein derivative (PPD) to identify persons who have been sensitized to mycobacterial antigens by infection with *M. tuberculosis*, environmental mycobacteria or administration of BCG.

Tuberculosis (TB): A clinically active, symptomatic disease caused by bacteria belonging to the M. tuberculosis complex (*M. tuberculosis, M. bovis, M. africanum*).

Ultraviolet germicidal irradiation (UVGI): An environmental control measure to kill or inactivate micro-organisms like *M. tuberculosis* through exposure to UVGI.

VCT: Voluntary counselling and testing for HIV infection.

Waste management system: All the activities, administrative and operational, involved in the production, handling, treatment, conditioning, storage, transportation and disposal of waste generated by health care establishments.

Work practice and administrative controls: Defined as managerial or administrative measures that guide work practices to reduce significantly the risk of TB transmission by preventing the generation of droplet nuclei. These include early diagnosis, prompt isolation or separation of infectious TB patients, prompt initiation of appropriate anti-tuberculosis treatment.

10. ANNEXES

ANNEX A.1. SAMPLE INFECTION PREVENTION AND CONTROL PLAN

A. The plan will include, but not be limited to, the following policy areas:

1. Screening patients to identify persons with symptoms of TB disease or who report being under investigation or treatment for TB disease.

2. Providing face masks or tissues to persons with symptoms of TB disease ("TB suspects") or who report being under investigation or treatment for TB disease ("TB suspects or cases"), and providing waste containers for disposal of tissues and masks.

3. Placing TB suspects and cases in a separate waiting area.

4. Triaging TB suspects and cases to the front of the line to expedite their receipt of services in the facility.

5. Referring TB suspects to TB diagnostic services and confirming that TB cases are adhering with treatment.

6. Using and maintaining environmental control measures.

7. Educating staff periodically on signs and symptoms of TB disease, specific risks for TB for HIV-infected persons, and need for diagnostic investigation for those with signs or symptoms of TB.

8. Training and educating staff on TB, TB control, and the TB infection prevention and control plan.

9. Monitoring the TB infection and control plan's implementation.

B. The facility will implement each policy by following the procedure(s) that accompany it.

Policy and Procedures

Purpose: Early identification, separation, receipt of services, and referral of patients with TB disease is essential in preventing spread of TB.

Lead: _____ has the responsibility for overseeing the implementation of these policies and its procedures, and reports to (*District health executive committee, etc).*

Policy 1: Screening patients to identify persons with symptoms or recent history of TB disease.

Procedures:

(i) Before patients enter an enclosed part of the facility, a designated staff person should ask each adult and any child capable of coughing forcefully (usually age 14 or older) about symptoms or recent history of TB. The questioning should occur before patients wait in line for long periods to register or obtain services.

(ii) Many combinations of symptoms have been recommended as sensitive and specific for TB. A simple screen is:

"Do you have a cough?" *If patient answers" yes," ask*
"For how long have you been coughing?"

An adult who has coughed for two weeks or more may be considered a "TB suspect" for pulmonary TB.

To determine whether a patient may be under investigation or a diagnosed case of TB, who may still be infectious, ask -

"Are you being investigated or treated for TB?"

If the answer to either is "yes," the screen classifies the patient as a TB suspect or case, and he should be managed as described in the procedures under policies 2 – 5 below.

(iii) As patients who are not identified as a TB suspect or case on the initial symptoms screen enter an examination room with the clinical officer, nurse, or counsellor, they should again be asked the simple screening questions. Those patients who report a cough of two or more weeks or who are being investigated or treated for TB should be managed as follows in the procedures under policies 2 – 5 below. Staff seeing patients in examination rooms should report patients they find to be a suspect or case to the infection control officer in a timely manner so that factors contributing to the potential exposure (e.g. an emergency or short staffing interfering with the designated person screening all patients) can be documented and corrected.

Policy 2: Instructions on cough hygiene.

Procedures:

(i) Patients who are found to be TB suspects or cases should immediately be informed about the importance of cough hygiene and be handed tissues (or pieces of cloth) and instructed to cover their mouths and noses when they cough. Alternatively, patients should be given a facemask, and asked to wear it while in the facility. Patients should also be instructed to dispose of used tissues or masks in identified no-touch receptacles and not on the ground or on the benches.

When tissues, cloths or facemasks are not available, clients should be instructed to lift their arm up and cover their nose and mouth with the inner surface of the arm or forearm when they cough or sneeze. *M. tuberculosis* cannot be spread from the hands, but other serious lung infections can.

(ii) No-touch receptacles for disposal of used tissues and masks should be available in the waiting areas.

Policy 3: Placing TB suspects and cases in a separate waiting area.

Procedures

(i) A staff person should direct or escort the patient to a separate waiting area. This special waiting area should have the highest natural ventilation possible. Patients should be assured of their place in the line for registration and/or services.

Policy 4: Triaging TB suspects and cases to the head of the line to receive services in the facility

Procedures

(i) TB suspects and cases should be moved to the head of the line for whatever services they want or need, e.g., VCT, medication refills, or medical investigation. This reduces the duration of potential exposure while they wait in the facility and may be an incentive to disclose information during screening.

Policy 5: Referring TB suspects to TB diagnostic services.

Procedures

(i) _____ is the designated staff person to counsel patients about obtaining TB diagnostic services.

(ii) Patients will be referred to _____ (a TB diagnostic centre with whom the health care facility has a previously negotiated agreement with).

(iii) Patients should be given a card with the name, location, and operating hours of the TB diagnostic centre. The card should also have the name of the referring facility on it, with date of referral marked. These cards can be collected at the TB centre and used as an anonymous check on number of referrals that successfully obtain TB services. (See also the TB suspect and case form listed in Annex A2 below, which can be used to cross-reference referrals that are made/successful).

Policy 6: Using and maintaining environmental control measures.

Procedures

(i) _____ is the designated staff person to check on environmental control measures and maintain a log of monitoring and maintenance.

(ii) Windows and doors should be checked on a daily basis to assure they are in proper position (open or closed as called for in the plan). Generally, all windows and doors should be open when natural ventilation is the primary environmental control to allow for the free, unencumbered movement of air (e.g., across room, from window to door or vice versa). Generally, all windows and doors should be closed when using mechanical ventilation to ensure air movement in a controlled manner (air from supply vent and from slots either under or in door toward the exhaust vent).

(iii) Fans should be checked on a monthly basis to assure they are clean, are pulling (or pushing) the correct amount of air, and are pulling (or pushing) air in the correct direction.

Policy 7: Providing confidential TB and HIV services to health care workers and staff.

Procedures

(i) Health care workers and all other staff working at the facility should be educated about the signs and symptoms of TB and encouraged to seek investigations promptly if they develop symptoms and signs suggestive of TB.

(ii) Health care workers and other staff should be informed about the special specific risks for TB for HIV-infected persons (see section on Training of staff).

(iii) Health care workers and staff should be encouraged to undergo HIV testing, and given information on relevant HIV care resources.

(iv) Staff training should include reduction of stigma of TB and HIV.

(v) _____ is responsible for determining when staff who develop TB disease may return to work.

(vi) Staff who develop TB disease may return to work when determined to be no longer infectious after:

a. Having completed at least two weeks of standard anti-TB therapy;
b. Exhibiting clinical improvement;
c. Having continued medical supervision and monitoring of treatment until cured; and
d. Where possible, having had three consecutive negative sputum smears obtained on three different days with at least one morning specimen. (Note: Frequent evaluation of sputum smear status may not be done routinely in resource-limited settings.)

Policy 8: Training of staff on all aspects of TB and the TB infection prevention and control plan.

Procedures

(i) _____ is the designated staff person to provide training to new staff as they are employed and to maintain a log indicating who has had initial training.

(ii) _____ is the designated staff person to provide annual training to all staff and to maintain a log indicating who has attended training. This may be incorporated into a broader training topic or it could be stand-alone TB infection control training.

(See Annex A.3 for Sample Training Materials)

Policy 9: Monitoring the TB infection prevention and control plan's implementation.

Procedures

(i) Determine the frequency of the infection prevention and control plan evaluation.
   a. During initiation of procedures, monitoring and evaluation should be done frequently, perhaps monthly or bi-monthly.
   b. When procedures are running well, less frequent evaluation will be necessary – at a minimum, annually.

(ii) Evaluate the screening process.
   a. Were patients with significant cough missed when entering the facility and only detected at a later time or in the examination room?
   b. What correctable factors were associated with these potential exposures?

(iii) Evaluate the success of referrals to the TB diagnostic centre.
   a. Did referred patients access care?
   b. Did referred patients have TB disease?
   c. What changes in screening or referral process should be made, if any?

(iv) Evaluate the training process.
   a. Did all new staff receive training on TB infection prevention and control during their induction?
   b. Did all staff receive annual re-training on TB infection control?

(v) Revise the infection prevention and control plan to reflect changes in staff responsibilities, policies, and procedures.

(vi) Develop a plan for correcting inappropriate practices or failure to adhere to institutional policies.
   a. Identify incentives to participate fully and adhere to policies.
   b. Identify corrective actions if policies are not followed.

ANNEX A.2. SAMPLE MONITORING TOOLS

_____ has the responsibility for overseeing the evaluation of the TB infection control policies and its procedures, and reports to _____(*Program director, District health executive committee, etc)*.

_____ has the responsibility for filling out The "TB case and suspect log" on a daily basis, entering the date, names of patients who were found to be a case or suspect that day, whether they were missed at intake screening, and to which facility they were referred.

_____ has the responsibility for conducting follow up on patients referred to a TB diagnostic facility and recording the outcomes of their investigation in the log.

_____ has the responsibility to summarize and present the results of the screening process to relevant management and staff periodically.

TB Case and Suspect Log

Date	**Patient Name**	**Case or Suspect** (c/s)	**Missed at intake?*** (y/n)	**Referred to** (name of facility)	**Outcome**** (TB, not TB, NS)

* Missed at intake = symptoms or history detected only after patient enters private room with clinician or counsellor instead of upon entry to the facility; or after numerous visits while symptomatic yet undetected: y=yes, n=no

** Outcomes: TB diagnosed or confirmed=TB; TB ruled out after diagnostic investigation=not TB; Did not present to referral facility for investigation=NS (not seen).

Staff TB Infection Control Training Log

Staff Name	**Start Date**	**Date first IPC training**	**Date annual training**	**Date annual training**	**Date annual training**	**Date annual training**

ANNEX A.3. TRAINING MATERIALS FOR STAFF

The following is a set of overheads with a script that can be used by a training facilitator or lecturer. Alternatively the staff person can read through the materials. Users may modify as needed to meet local needs.

(Insert PowerPoint presentation)

ANNEX A.4 EDUCATION MATERIALS ABOUT TB FOR PATIENTS

Health care workers can use this guide to remind them of what to ask and say about TB during an initial information session with any patient. Questions they can ask to find out how much the patient knows about TB are in bold on the left; and messages related to the questions are on the right. They can emphasize different messages with different patients depending on the patient's current knowledge about TB.

What is TB?	TB is an illness (i.e., disease) caused by a germ that is breathed into the lungs. TB germs can settle anywhere in the body, but we most often hear about TB of the lungs. When lungs are damaged by TB, a person coughs up sputum (mucus from the lungs) and cannot breathe easily. Without correct treatment, a person can die from TB.
What kind of symptoms do you think people with TB have?	People with TB of the lungs have a chronic cough, generally lasting for more than two weeks. They can also cough up blood. People with TB in any part of the body have fevers, night sweats, and weight loss. People with these symptoms should tell a health care provider so they can be evaluated for TB.
Have you ever known anyone with TB? What happened to that person?	*(just listen to their response)*
Do you know that TB can be completely cured?	TB can be cured with the correct drug treatment. The patient must take all of the recommended drugs for the entire treatment time (six or eight months) to be cured. Drugs for treatment of TB are provided free of charge, and treatment can be done without interrupting normal life and work.
How do you think that TB spreads?	TB spreads when an infected person coughs or sneezes, spraying TB germs into the air. Others may breathe in these germs and become infected. It is easy for germs to pass to family members when many people live closely together. Anyone can get TB. However, not everyone who is infected with TB will become sick.
How can someone with TB avoid spreading it?	There are several ways that a person with TB can prevent infecting others. An important step it to take regular treatment to become cured. Another measure to prevent infecting others is for infected persons to cover their noses and mouths when coughing or sneezing. Finally, infected persons should open windows and doors to allow fresh air into their homes.

Is TB a problem for people with HIV infection?	People living with HIV and AIDS are at extra risk of getting sick from TB because their body cannot fight off germs very well. If someone develops symptoms of coughing for more than two weeks, coughing up blood, weight loss, fevers or night sweats, it is important to get checked for TB. TB can be cured even in persons with HIV and AIDS.

Source: Stop TB Department, WHO: Management of Tuberculosis Training for Health Facility Staff, Geneva, 2003.

ANNEX B. INFORMATION ON VENTILATION AND FANS

Controlled natural ventilation

Natural ventilation refers to fresh dilution air that enters and leaves a room or other area though openings such as windows or doors. Natural ventilation is controlled when openings are deliberately secured open to maintain airflow. Unrestricted openings (that cannot be closed) on opposite sides of a room provide the most effective natural ventilation.

Propeller fans

Propeller fans may be an inexpensive way to increase the effectiveness of natural ventilation, by increasing the mixing of airborne TB as well as assisting in the direction of air movement by pushing or pulling of the air.

Types of propeller fans

Propeller fans include:

- Ceiling fans,
- Small fans that sit on a desk or other surface,
- Fans that stand on the floor, and
- Fans mounted in a window opening.

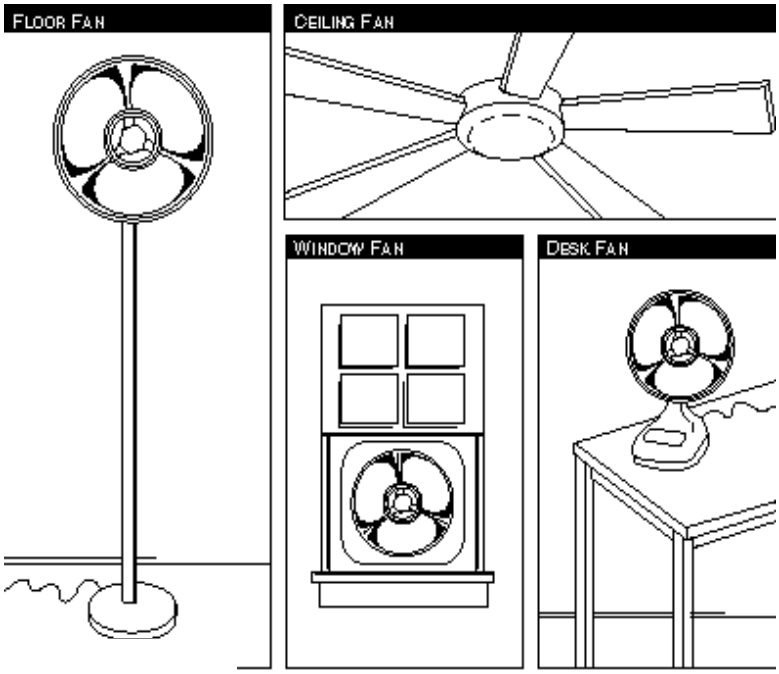


Figure 1. Propeller fans

Air mixing and removal

A propeller fan helps mix air in a room. Mixing of air will reduce pockets of high concentrations, such as in the corners of a room or in the vicinity of patients where natural ventilation alone is not enough. The total number of infectious particles in the room will not change with mixing; however, the concentration of particles near the source will be reduced, and the concentration in other parts of the room may increase.

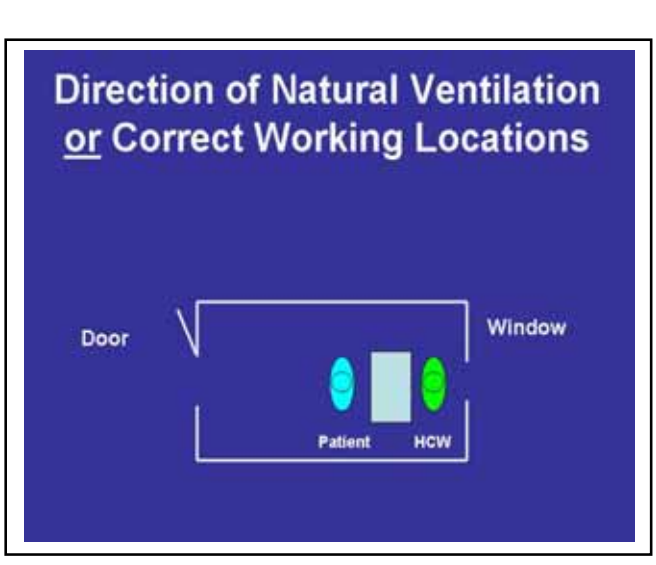
If this dilution effect is combined with a way to replace room air with fresh air, such as by opening windows and doors, the result will be fewer infectious particles in the room.

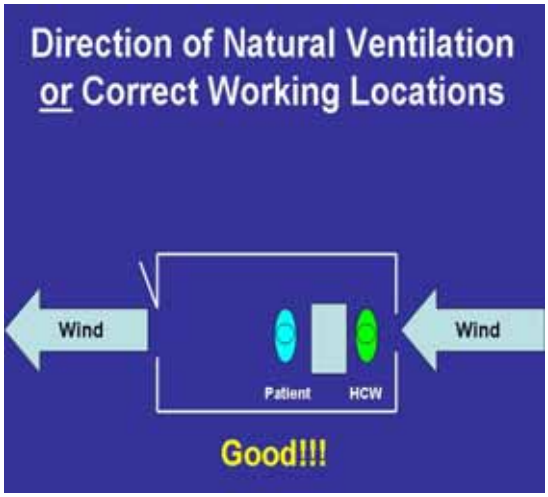
A room with an open window, open door, and a fan will have less risk than an enclosed room with no fan, an enclosed room with a fan, or a room with an open window but no fan. In addition, mixing may increase the effectiveness of other environmental controls.

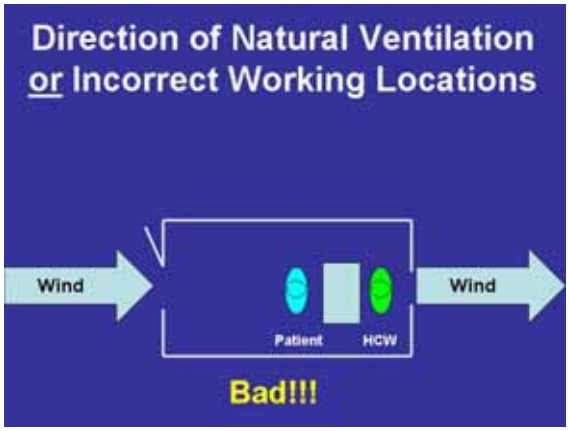
Directional airflow

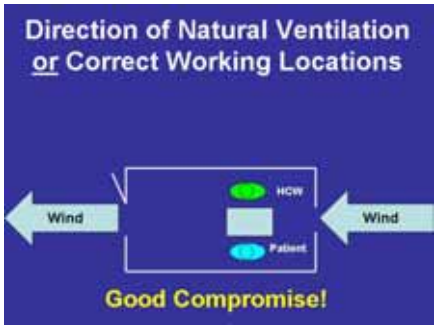
If placed in or near a wall opening, propeller fans can also be used to enhance air movement into and out of a room.

Consider fans installed in the windows or through wall openings on the back wall of a building. The fans exhaust air outside, away from people or areas where air may come back into the building. If doors and windows in the front of the building are kept open, the overall effect should be to draw in fresh air through the front of the building and exhaust air through the rear. Health care staff should be mindful of the direction of airflow to ensure the patient is closest to the exhaust fans and the staff is closest to the clean air source.









With this arrangement, the risk that TB will be spread is greater near the back of the building; however, once the contaminated air is exhausted, dilution into the environment will be fast.

Exhaust fans

There are a wide variety of exhaust fan systems. A system can be as simple as a propeller fan installed in the wall, or it could include a ceiling grille, a fan, and a duct leading to discharge on an outside wall or on the roof.

Over time, dust and lint accumulate on exhaust fan blades. The fans, motors, blades, and ducts become dirty and less air is exhausted. For this reason, these systems should be cleaned regularly.

Checking natural ventilation

People can usually feel the existence or lack of air movement in a space. A ventilated space has a slight draft. In the absence of ventilation, air will feel stuffy and stale and odours will linger. Use the following checklist to assess natural ventilation in your waiting areas and examination rooms:

- Check air mixing and determine directional air movement in all parts of rooms or areas. One way to visualize air movement is to use incense sticks as described in these six steps.
  1. Hold two incense sticks together and light them.
  2. As soon as the incense starts to burn, blow out the flame. Now the incense should produce a continuous stream of smoke.
  3. Observe the direction of the smoke.
  4. Observe how quickly the smoke dissipates. This is a subjective test that may require some practice (see box below). It does not give a definite result but is useful for comparing one room or area to another.
  5. Check natural ventilation once a year after the prevailing wind patterns have been determined. Recheck if any changes in the physical environment are made and confirm procedures for ensuring free movement of air are followed.
  6. Keep records of all routine activities and dates.

Checking fans

- Check that all room fans are working and cleaned once a month. Use cloth or vacuum cleaner to remove dust and lint from fans, grilles, and ducts.
- Check that exhaust fans are working and cleaned once a month. Use cloth or vacuum cleaner to remove dust and lint from fans, grilles, and ducts. Clean ducts behind grilles as far back as can be reached.
- To check fans that have a grille, hold a tissue or piece of paper against the grille. If the exhaust fan is working, the tissue or paper should be pulled against the grille.
- Flow rates through exhaust fans and grilles can be measured using a simple velocity meter and a means to measure that velocity over a known cross-sectional area. The airflow rates can be calculated from simple velocity measurements (see Boxes 1 and 2).
- Air exchange rates (also called air-changes per hour) can be calculated as shown in boxes below. If mechanically ventilating a room, the fan should provide a minimum of six air exchanges per hour.
- Keep records of all routine activities and dates.

Box 1. Estimating air velocity.

Measure 0.5 meter distance and mark it on a tabletop. Move your hand from one end to the other (0.5 meters) in one second. This is equivalent to 0.5 m/s! In order to have directional control of contaminants in air, one should have air moving at least 0.5 m/s.

Example airflow calculation:

Fan, duct, or box opening: 0..5 m high, 0.5 m wide
Area = 0.5 m x 0.5 m = 0.25 m^2
Average air velocity through fan, duct, or box opening: 2.5 m/s

Average flow rate = Area times average air velocity
0.25 m^2 x 2.5 m/s x 3600 s/hour = 2 250 m^3/hour

Box 2. Example air exchange rate calculation

Window opening: 0..5 m high, 0.5 m wide
Window area = 0.5 m x 0.5 m = 0.25 m^2
Average air velocity through window: 0.5 m/s
Room dimensions: 3 m wide, 5 m deep, and 3 m high
Room volume = 3 m x 5 m x 3 m = 45 m^3

Average flow rate = Area of window times average air velocity
0.25 m^2 x 0.5 m/s x 3600 s/hour = 450 m^3/hour

Air exchange rate = Average flow rate divided by room volume
450 m^3/hour ÷ 45 m^3 = 10 air exchanges per hour

ANNEX C. INPATIENT SETTINGS

Although the information in this addendum is directed primarily toward outpatient facilities, many of the recommendations also apply to inpatient facilities. Specifically, measures regarding the infection prevention and control plan, health care worker and staff training, patient education, sputum collection, and triage and evaluation of suspect TB patients are similar. Prevention of TB in hospitals requires a combined effort of infection control practices; more information on prevention of transmission of *M. tuberculosis* in hospital settings is available in *Additional Resources*.

One of the most effective means to reduce the risk of transmission of *M. tuberculosis* in hospital settings is to manage TB patients in the outpatient setting whenever possible. Many patients can be managed entirely as outpatients, thereby avoiding hospitalization and the risk of exposing other patients and staff. If hospitalized, patients should be re-evaluated frequently for possible discharge with continuation of therapy as outpatients.

Ideally, infectious TB patients should be isolated from other patients so that others are not exposed to the infectious droplet nuclei that they generate. If sputum smear is performed at the time of admission, those who have positive sputum smear results, and thus most infectious, should be isolated or separated from other patients.

The hospital administration should attempt to:

- Limit the number of areas in the facility where exposure to potentially infectious TB patients may occur.
- Establish separate wards, areas or rooms for confirmed infectious TB patients. These wards/areas should be located away from wards with non-TB patients, especially wards with paediatric or immuno-compromised patients.

As in the outpatient setting, early identification, diagnosis, and treatment of TB cases is the highest priority. Assigning the role of "ward cough officer" to a staff member, who assures sputum specimen collection, rapid transport of specimens to the laboratory, and the delivery of results to the ward medical team, can be effective. The ward cough officer may help to identify patients in need of investigation and to enforce TB infection control policies.

Radiology departments in hospitals often provide services to a variety of patient who may be at particularly high risk for TB, such as young children or immuno-compromised patients.

Radiology departments should attempt to:

- Schedule inpatient chest radiographs on infectious and suspect TB patients for non-busy times, such as the end of the afternoon.
- Provide coughing patients with a surgical mask to wear, or tissues or cloth to cover their mouths.
- Provide priority service to potentially infectious TB patients to minimize the length of time spent in the department.
- Restrict access to the radiology suite to patients and essential personnel only.
- Use the room with the best ventilation for taking images of potentially infectious TB patients.

ANNEX D. FAQ – MULTI-DRUG-RESISTANT TB (MDRTB)

What is MRDTB?

Multi-drug resistant TB, usually called MDRTB, is TB that is resistant to at least the two most important anti-TB drugs, Isoniazid and Rifampicin. This means the two drugs do not effectively treat the TB disease.

Why is MDRTB a problem?

Because the two most important anti-TB drugs are not effective in treating MDRTB, treatment requires drugs which are more toxic, more expensive, take longer to work and do not work as well (called "second line" drugs). Also, these second line drugs are not widely available in resource-limited settings.

What causes MDRTB?

MDRTB may result from poor anti-TB treatment adherence or by incorrect treatment. Adherence means taking the correct drugs with the correct doses at the correct time. If the wrong drugs or the wrong combinations of drugs are prescribed, or providers fail to ensure that they are taken correctly on schedule, the bacteria causing TB may develop resistance to the drugs. When this happens, the patient who initially had non-resistant TB develops drug-resistant TB. If the patient who has MDRTB spreads TB to others, they will have MDRTB as well.

How is MDRTB prevented?

MDRTB is a condition that can be prevented by following the international TB control strategy called DOTS, which stands for **D**irectly **O**bserved **T**reatment, **S**hort-course. Health care providers should always adhere to the National Tuberculosis Programme Guidelines and use only the recommended anti-TB treatment regimens, drug combinations and drug dosages. Anti-TB drugs, preferably Fixed Dose Combinations (one tablet contains all the drugs), of high quality should be available in regular and sufficient quantities. Adherence to anti-TB treatment must be ensured with support, encouragement and monitoring of adherence by a relative, community volunteer, or a clinic nurse.

How do we know if a patient has MDRTB or XDRTB?

The diagnosis of XDR and MDRTB can only be made in a laboratory that can test sputum specimens for the presence of *M. tuberculosis* (the TB germ isolated by culture) and then test those TB isolates for drug resistance. Patients who report interrupted treatment for TB, or failure to have symptoms improve after one to two months of TB treatment, may have drug-resistant TB, and should be separated, especially from persons with HIV infection, until their condition is evaluated.

Is there MDRTB is my community?

The District Medical Officer and national TB programme can provide information on rates of MDRTB in specific communities.