



health

Department:
Health
REPUBLIC OF SOUTH AFRICA

**THE DRAFT NATIONAL INFECTION
PREVENTION AND CONTROL POLICY FOR
TB, MDRTB AND XDRTB.**

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TUBERCULOSIS INFECTION CONTROL IN THE ERA OF EXPANDING HIV CARE AND TREATMENT: Addendum to WHO *Guidelines for the Prevention of Tuberculosis in Health Care Facilities in Resource-Limited Settings*

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1. PREFACE

1.1 WHY THIS POLICY WAS DEVELOPED

The goal of this policy is to help management and staff minimize the risk of TB transmission in health care facilities and other facilities where the risk of transmission of TB may be high due to high prevalence of both diagnosed and undiagnosed TB such as prisons.

In this era of increasing access to HIV counselling and testing, care, and treatment for people living with HIV, more people living with HIV-associated immuno-suppression are attending health care and community facilities than ever before. Persons, including health care workers, with HIV-associated immuno-suppression are particularly vulnerable to developing TB disease if they become infected with *Mycobacterium tuberculosis* (*M. tuberculosis*, the germ that can cause TB) as a result of exposure in these settings.

This policy aims to give the reader a greater understanding of the following issues in the context of health care settings:

- TB transmission in health care facilities.
- Infection prevention and control procedures to reduce the risk of *M. tuberculosis* transmission in health care facilities.
- Protection of health care workers and staff through HIV voluntary counselling and testing (VCT), increasing awareness of TB in staff and preventive action.
- Importance of TB infection control in drug rehabilitation centres, correctional institutions including prisons, other detention centres and other facilities where large numbers of possible TB and HIV infected individuals gather.
- Issues of multi-drug resistant TB (MDRTB).

1.2 WHO SHOULD USE THIS POLICY?

This document is for health care managers, health care workers, administrators, and stakeholders in the public, private, and nongovernmental health sector involved in providing care and treatment to persons with TB and or HIV and AIDS. It can also be helpful for persons or institutions responsible for the health and wellbeing of large numbers of persons living with HIV and AIDS (PLWHA). Settings include VCT centres, community-based outreach centres, ARV and other HIV care clinics, hospices, general health care facilities, drug rehabilitation centres, and correctional institutions such as prisons.

1.3 NOTE ON THE USE OF "TB", *MYCOBACTERIUM TUBERCULOSIS* AND "TB SUSPECT"

The words "tuberculosis (TB)" and "*M. tuberculosis*," the bacterium that causes TB, are used in different ways. This document uses "TB" to describe clinical events, such as TB infection, TB transmission, and TB disease. *M. tuberculosis* is used when describing potentially infectious germs that a person with TB disease of the lungs or larynx expels when coughing. "TB suspect"

refers to a person who presents with symptoms or signs suggestive of TB disease, in particular a cough of long duration.

2. INTRODUCTION

2.1 WHY TB IS A PROBLEM IN HIV CARE SETTINGS

Persons with undiagnosed, untreated and potentially contagious TB are often also seen in HIV care settings. TB is the most common opportunistic infection and a leading cause of death in persons living with HIV and AIDS (PLWHA).

In high TB burden settings, surveys have shown that up to 10% of persons with HIV infection may have previously undiagnosed TB at the time of HIV voluntary counselling and testing (VCT), including at centres providing prevention-of-mother-to-child HIV transmission (PMTCT) services. Up to half of these may be infectious TB cases.

Between 30% and 40% of PLWHA living in high burden TB settings will develop TB in their lifetime, in the absence of Isoniazid preventive therapy or antiretroviral therapy. The risk of developing TB disease doubles in the first year after becoming HIV-infected and gets progressively higher over time. Persons without TB disease at the time of HIV diagnosis may still develop TB in later years, and will then be at risk of spreading *M. tuberculosis* in the community as well as to fellow patients, healthcare workers, and staff at their HIV and/or other primary health care clinics and in community programmes.

Persons with HIV-associated immuno-suppression may become infected or re-infected with TB if they are exposed to someone with infectious TB disease. They can progress rapidly from TB infection to disease – over a period of months rather than a period of years as is common for persons with a normal immune system.

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

Multiple TB outbreaks affecting HIV-infected patients and health care workers due to health care facility exposures were documented in industrialized countries in the nineties. These coincided with the early period of the HIV epidemic, before TB infection prevention and control procedures in health care facilities were strengthened. This document provides information on measures that can be taken, even in resource-limited settings, to prevent unnecessary morbidity and mortality due to TB transmission in health care settings.

Work practice, administrative control measures and environmental control measures are the focus of this policy. Other issues addressed are HIV and TB in health care workers and staff, and protecting their health; MDRTB; and specialized facilities such as drug rehabilitation centers.

2.2 HOW MYCOBACTERIUM TUBERCULOSIS IS SPREAD

TB is caused by *M. tuberculosis*. People who have TB disease in their lungs can release tiny particles containing *M. tuberculosis* into the air by coughing. These particles are called droplet nuclei. They are invisible to the naked eye. Droplet nuclei can remain airborne in room air for many hours, until they are removed by natural or mechanical ventilation.

To spread, there must be a source, a person with TB disease who produces *M. tuberculosis*, and an exposed person to inhale droplet nuclei containing the bacteria. Although TB is not usually spread by brief contact, anyone who shares air with a person with TB disease of the lungs in an infectious stage is at risk. A person who inhales one or more of the droplet nuclei can become infected with *M. tuberculosis*.

2.3 HOW TB DISEASE IN THE LUNGS IS DIAGNOSED

The most common part of the body to have TB disease is the lungs. In resource-limited settings TB disease in the lungs is diagnosed by examining samples of sputum with a microscope. The sputum is smeared onto a small glass plate, stained with chemicals, and viewed under the microscope. If *M. tuberculosis* bacilli are present, they can often (but not always) be seen. These diagnostic tests are referred to as "sputum smears". Sometimes chest radiography is done to assist with making the diagnosis.

2.4 VACCINATION WITH BCG

The Bacille Calmette-Guérin (BCG) vaccine is a live vaccine derived from a strain of *Mycobacterium bovis* (similar to *M. tuberculosis*) first administered to humans in 1921. Since that time, many different strains have been derived and are used today throughout the world to prevent TB disease. BCG vaccination reduces the risk for progression from latent TB infection to TB disease. BCG vaccination may cause a positive reaction to a tuberculin skin test.

2.5 THE DIFFERENCE BETWEEN TB INFECTION AND TB DISEASE

TB Infection

- TB infection is the state of having a small number of *M. tuberculosis* bacteria present in the body that are unable to grow due to control by the immune system. The bacteria are inactive, but remain alive in the body and can become active later. This condition is also referred to as latent TB infection (LTBI).
- TB infection does not cause a person to feel sick, and there are no symptoms, nor are any signs detected upon medical evaluation.
- A tuberculin skin test is the main method used to diagnose TB infection. A positive result usually means that TB infection is present, but persons with HIV-associated immunosuppression can have a false negative TB skin test even with TB infection. Also, persons who have received BCG vaccination may have a false positive skin test.

- Only one out of 10 people with TB infection and a normal immune system will develop TB disease in their lifetime. For persons with HIV infection and TB infection, one out of 10 each year will develop TB disease.
- Treatment for TB infection with the anti-TB drug Isoniazid can reduce the risk that TB disease will develop, though the protective benefit only lasts about two years in persons with HIV infection.

TB Disease

- Most TB disease occurs in the lungs. In persons with HIV infection, however, up to half of TB cases have disease in other parts of the body.
- A person with TB disease of the lungs usually has a cough and sometimes coughs up blood.
- General symptoms of TB disease include fever, sweating at night, loss of appetite, weight loss, and fatigue.
- With standard treatment TB disease can be cured, even in persons with HIV infection.
- Untreated TB is often fatal, especially in persons infected with HIV.

TB Infection versus TB Disease

TB Infection	TB Disease (in the lungs)
<i>M. tuberculosis</i> in the body	
Tuberculin skin test reaction usually positive	
No symptoms	Symptoms such as cough, fever, weight loss
Chest x-ray usually normal	Chest x-ray usually abnormal
Sputum smears and cultures negative	Sputum smears and cultures usually positive*
Not infectious	Often infectious before treatment
Not a case of TB	A case of TB

* Sputum smears more often negative in HIV-infected TB cases

2.6 WHEN TB IS INFECTIOUS

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

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

A TB suspect should be considered infectious until a diagnostic investigation is completed.

3. HOW TO REDUCE THE RISK OF SPREADING *M. TUBERCULOSIS* IN HEALTH CARE SETTINGS

It is very likely that persons with infectious TB will be found in HIV care and other health care settings. There is also a strong likelihood that these persons will spread *M. tuberculosis* to other persons, including immuno-compromised patients or staff. However, there are interventions that can significantly reduce this risk. There are two main ways in which even settings with limited resources can reduce the chances that TB will spread. These two main ways are, (i) work practice and administrative control measures, and (ii) environmental control measures.

In general, work practice and administrative control measures have the greatest impact on preventing TB transmission within settings, and they are the first priority in any setting regardless of available resources. These measures prevent droplet nuclei containing *M. tuberculosis* from being generated in the facility, and thus reduce exposure of patients and staff to TB. Ideally, if generation of droplet nuclei is eliminated then exposure is eliminated; no further controls are needed. However, since it is not possible to eliminate all exposure, environmental control measures must be added to reduce the concentration of droplet nuclei in the air. Although many environmental control measures require resources not available in resource-limited settings, some can be implemented, and staff can be trained in their purpose, capabilities, proper operation, and maintenance.

3.1 WORK PRACTICE AND ADMINISTRATIVE CONTROLS

Work practice and administrative control measures have the greatest impact on preventing TB transmission within health care facilities. They serve as the first line of defence for preventing the spread of TB in health care settings. Their goals are, (i) to prevent TB exposure to staff and patients, and (ii) to reduce the spread of infection by ensuring rapid and recommended diagnostic investigation and treatment for patients and staff suspected or known to have TB. This can best be accomplished through the prompt recognition, separation, provision of services, and referral of persons with potentially infectious TB disease.

There are five components to good work practice and administrative controls. They are:

- An infection prevention and control plan;
- Administrative support for procedures in the plan, including quality assurance;
- Training of staff;

- Education of patients and increasing community awareness; and
- Coordination and communication with the TB programme.

3.1.1 AN INFECTION PREVENTION AND CONTROL PLAN

Each facility should have a written TB infection prevention and control plan that outlines a protocol for the prompt recognition, separation, provision of services, investigation for TB and referral of patients with suspected or confirmed TB disease.

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

Patients who are identified as TB suspects on the screening must be given advice on **respiratory hygiene/cough etiquette**, and provided with a facemask (e.g. surgical mask) or tissues to cover their mouths and noses. They should then be **separated** from other patients and requested to wait in a separate well-ventilated waiting area.

It is recommended that symptomatic patients be placed at the front of the line, to quickly provide care and reduce the amount of time that others are exposed to them.

Some patients found to have symptoms suggestive of TB may have attended the clinic or hospital for another reason. If possible, these patients should first **receive the services** they were originally accessed for before being investigated for TB or referred to the TB clinic, unit or ward.

TB suspects should promptly be **investigated** for TB following the national protocol. If TB diagnostic services are not available onsite, the facility should have an established link with a TB diagnostic centre to which symptomatic patients can be **referred**. Also, each facility should have a linkage with a TB treatment centre to which those who are diagnosed with TB can be **referred** (see section 3.1.5, *Coordination and Communication between TB and HIV & AIDS Care Programmes*). Ideally, sputum samples should be collected and sent to the nearest laboratory. Sputum collection should always be done in a designated area with a lot of air circulation and away from other people, not in small rooms such as toilet rooms or other enclosed areas. If this is not possible the patient should be referred to the nearest TB diagnostic centre. Every attempt should be made to prioritise and fast track this referral as further delays in diagnosis will increase the risk of exposing others to TB infection.

The plan should designate a staff member to be the infection prevention and control officer who is responsible for ensuring infection prevention and control procedures are implemented. The plan will include, but not be limited to, the following policy areas:

- (a) Screening all patients as soon as possible after arrival at the facility to identify persons with symptoms of TB disease or persons who are being investigated or treated for TB disease.

- (b) Instructing the above designated persons identified through screening, in **respiratory hygiene/cough etiquette**. This includes instructing them to cover their nose and mouth when coughing or sneezing, and when possible providing facemasks or tissues to assist them in covering their mouths.

Facemasks help prevent the spread of *M. tuberculosis* from the patient to others. It can capture large wet particles near the mouth and nose of the patient, preventing the bacteria from being released into the environment. Facemasks could be provided to persons who have a positive symptom screen to wear until they leave the facility. Paper tissues provided to these persons, with instructions to cover their mouths and noses when coughing or sneezing, are less costly and also less likely to identify people as TB suspects with attendant risk of stigma. However, they are less likely to be used effectively.

(See section 4.3, *Personal Respiratory Protection*)

Tissues and facemasks should be disposed in the appropriate waste containers. Clients and especially staff should be encouraged to wash their hands after contact with respiratory secretions. *M. tuberculosis* cannot be spread from the hands, but other serious lung infections can.

- (c) Placing TB suspects and cases in a separate well ventilated waiting area such as a sheltered open-air space is ideal when the weather permits.
- (d) Speeding up management of these persons so that they spend as little time as possible at the facility.
- (e) Ensuring rapid diagnostic investigation of TB suspects, including referring TB suspects to TB diagnostic services if not available on site, and ensuring that persons reporting TB treatment are adhering with their treatment.
- (f) Using and maintaining environmental control measures (see section 3.2, *Environmental Control Measures*).
- (g) Training and educating all staff on TB and the TB infection prevention and control plan. Training should include special risks for TB for HIV-infected persons, and need for diagnostic investigation for those with signs or symptoms of TB.
- (h) Providing voluntary, confidential HIV counselling and testing for staff with adequate access to treatment.
- (i) Monitoring the TB infection prevention and control plan's implementation and correcting any inappropriate practices or failure to adhere to institutional policies.

(See Annex A.1. *Sample infection prevention and control plan*)

Five Steps for Patient Management to prevent transmission of TB in health care settings

Step	Action	Description
1.	Screen	Early recognition of patients with suspected or confirmed TB disease is the first step in the protocol. It can be achieved by assigning a staff member to screen patients for prolonged duration of cough immediately after they arrive at the facility. Patients with cough of more than two weeks duration, or who report being under investigation or treatment for TB*, should not be allowed to wait in the line with other patients to enter, register, or get a card. Instead, they should be managed as outlined below.
2.	Educate	Educating the above-mentioned persons identified through screening, in cough hygiene . This includes instructing them to cover their noses and mouths when coughing or sneezing, and when possible providing facemasks or tissues to assist them in covering their mouths.
3.	Separate	Patients who are identified as TB suspects or cases by the screening questions must be separated from other patients and requested to wait in a separate well-ventilated waiting area, and provided with a surgical mask or tissues to cover their mouths and noses while waiting.
4.	Triage	Triaging symptomatic patients to the front of the line for the services they are seeking (e.g. patients for voluntary HIV counselling and testing, and medication refills), to quickly provide care and reduce the amount of time that others are exposed to them, is recommended. In an integrated service delivery setting, if possible, the patient should receive the services they are accessing before the TB investigation.
5.	Investigate for TB or Refer	TB diagnostic tests should be done onsite or , if not available onsite, the facility should have an established link with a TB diagnostic and treatment site to which symptomatic patients can be referred .

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

3.1.2 ADMINISTRATIVE SUPPORT

The facility-based (institutional) Infection Prevention & Control Committee

Each health care facility should establish a multidisciplinary Infection Prevention & Control Committee where appropriate. This committee should comprise of at least the officer in charge of infection prevention and control in the facility, a microbiologist, the persons in charge of all the relevant medical disciplines, a pharmacist, a housekeeping supervisor, a food service manager, a laundry service manager, a maintenance manager, and the hospital manager.

Should the facility not have a medically trained microbiologist on its staff establishment, the committee should ensure easy access to the services of a medically trained microbiologist.

Should the facility (hospital) not have a hospital engineer on its staff establishment, the committee should arrange access to the services of such engineer with their provincial health department.

The Infection Prevention & Control Team (Unit)

Each facility appoints an Infection Prevention and Control Team (unit), which will comprise of least a clinician (ideally a medically trained microbiologist) and a registered nurse, trained in infection prevention and control.

The number of trained infection prevention and control nurses represented on this team should ideally be one nurse per 200 patient beds.

Clinics and Community Health Centres should each have at least one identifiable person responsible for overseeing the Infection Prevention and Control function.

Where the availability of medical staff does not permit it, there should at least be an identifiable clinician allocated for providing medical input and direction to the infection prevention and control team in each hospital.

(See Annex A.2. *Sample monitoring tools*)

3.1.3 TRAINING OF STAFF

Infection prevention and control is effective only if all staff working in a facility understands the importance of the infection prevention and control policies and their role in implementing them. As part of training, each health care worker and staff member, including any lay workers, should receive job category-specific instruction. Training should be conducted before initial assignment and continuing education should be provided to all employees and volunteers annually.

Training should include the following:

- Basic concepts of *M. tuberculosis* transmission and pathogenesis, i.e. the difference between infection and disease;
- Risk of TB transmission to health care workers and staff;
- Symptoms and signs of TB;
- Impact of HIV infection on increasing risk of developing TB disease and the importance of TB as a major cause of disease and death in PLWHA;
- Importance of the infection prevention and control plan and the responsibility that each staff member has to implement and maintain infection prevention and control practices;
- Specific infection prevention and control measures and work practices that reduce the likelihood of transmitting TB; and
- Measures staff can take to protect themselves from TB.

(See Annex A.3. *Training materials for staff*)

3.1.4 EDUCATION OF PATIENTS AND COMMUNITY AWARENESS

As noted in the introduction, up to one-third or more of HIV-infected persons living in areas with widespread TB will develop TB disease during their lifetime. Educating communities and patients to recognize symptoms of TB and to seek health care and further investigations should be routine in all settings providing care for patients, especially HIV-infected persons. In addition, patients should understand how to protect themselves, and others, from exposure to TB by simple cough hygiene measures.

(See Annex A.4. *Patient education materials*)

3.1.5 COORDINATION AND COMMUNICATION BETWEEN THE TB AND HIV & AIDS CARE PROGRAMME

Coordination and communication between HIV & AIDS and TB programmes must be prioritised. Each facility without an integrated system providing care for both TB and HIV should develop an agreement with the local TB programme, which establishes:

- A referral mechanism for patients suspected of having TB disease to be investigated in the TB diagnostic centre and started on treatment, if indicated; and
- A monitoring mechanism that provides feedback to the referring facility to evaluate both the linkage with TB diagnostic services and the appropriateness of referrals as indicated by the proportion of suspects actually confirmed as having TB disease.

• (See Annex A.2. *Sample monitoring tools*)

3.2 ENVIRONMENTAL CONTROL MEASURES

Environmental controls are the second line of defence for preventing the spread of TB in health care settings. It is important to recognize that if work practice or administrative controls are inadequate, environmental controls will not eliminate the risk. Environmental control measures include the following:

- Ventilation (natural and mechanical),
- Filtration, and
- Ultraviolet germicidal irradiation.

Many environmental control measures are technologically complex and expensive, and therefore only practical for referral hospitals. However, controlled natural ventilation can reduce the risk of spreading *M. tuberculosis*.

Ventilation is the movement of air in a building and replacement of air in a building with air from outside. Natural ventilation relies on open doors and windows to bring in air from the outside; "controlled" implies that checks are in place to make sure that doors and windows are maintained in an open position that enhances ventilation. Fans may also assist to distribute the air. When fresh air enters a room it dilutes the concentration of particles in room air, such as droplet nuclei containing *M. tuberculosis*. Designing waiting areas and examination rooms so that they maximize natural ventilation can help reduce the spread of TB. When the weather permits, open-air shelters with a roof to protect patients from sun and rain could be used as waiting areas

(See Annex B. *Information on ventilation and fans*)

If patients are asked to provide sputum specimens for TB diagnosis onsite, they should always do so in an adequately ventilated booth or outside in the open air and away from other people, not in small rooms such as toilets or other enclosed areas.

(See *References: Additional Resources* for more information on sputum collection booths)

4. PROTECTION OF HEALTH CARE WORKERS AND STAFF

4.1 INCREASING AWARENESS OF TB IN HEALTH CARE WORKERS AND STAFF

Investigations in countries in Africa, Asia, and South America have documented increased risk of TB disease or infection in health care workers compared with the general population¹. Those at risk include not only health care providers, but also any staff, including volunteers, who have contact with persons with TB who have not yet been diagnosed and started on treatment. This could include porters and cleaners, as well as peer educators, adherence supporters, and volunteers working as counsellors or in support groups. PLWHA in these roles are at particular risk of rapid progression to TB disease if they become infected or re-infected due to exposure to *M. tuberculosis* in the facility. They should be included in all training programmes. A third

group, staff in correctional institutions and drug rehabilitation centres, also has been documented to have higher rates of TB infection and disease than the general population.

The infection prevention and control measures recommended in this policy should reduce the time persons with undiagnosed TB spend in health care settings and should improve ventilation and thus dilution of any *M. tuberculosis* particles in the environment. Nevertheless, the risk to staff will never be zero, and an additional aspect of protecting staff is promoting early recognition of TB disease and standard treatment.

Annual screening programmes for TB disease, such as annual chest radiography, have not been shown to effectively reduce the amount of time between developing symptoms and diagnosis, as only a fraction of those who develop TB do so around the time of screening. Instead, reminders that health care workers and other staff can develop TB, regardless of previous infection status or BCG vaccination, should occur with annual re-training on infection prevention and control.

It is recommended that staff be investigated for TB free of charge if they have a cough for two weeks or more. The infection prevention and control plan should list designated staff members who should be contacted to initiate TB investigations, and reinforce that all services are confidential.

Tuberculin skin testing can diagnose persons with TB infection who are most likely to develop TB disease, and who could potentially benefit from preventive treatment for TB infection. However, TB preventive therapy programmes for HIV-infected health care workers should be prioritised.

4.2 INCREASING ACCESS TO VOLUNTARY HIV COUNSELLING AND TESTING

Encouraging and enabling health care workers and all staff to know their HIV status should be a priority of all health care services, and HIV care programmes in particular. The rate of HIV infection among health care workers and staff may be similar to that of the broader community. In the past, stigma, lack of confidentiality, and lack of treatment options have contributed to failure of health care workers to know their HIV status. The expansion of the types of facilities addressed in this addendum is a sign that conditions are changing.

Health care workers and all staff should be encouraged to know their HIV status. This could be achieved through providing accessible, acceptable, confidential VCT, including periodic retesting, to staff. However, there is no role for mandatory HIV testing of health care workers, because health care workers have the same rights as all individuals to confidential HIV testing with counselling and conducted only with an informed consent.

HIV-infected health care workers and other staff are at increased risk of developing TB disease if exposed in the workplace, and additional precautions should be taken to protect them. Immuno-compromised health care workers should be given opportunities to work in areas with a lower risk of exposure to TB.

Education directed to health care workers concerning HIV testing must be linked to their role in educating patients and communities about the benefits of testing and knowing one's HIV status. This may further reduce stigma.

4.3 PERSONAL RESPIRATORY PROTECTION

Personal respiratory protection refers to the selection, training, and use of respirators. Respirators can protect health care workers from inhaling *M. tuberculosis* only if standard work practice and environmental controls are in place.

In addition, they are expensive to purchase and require specialized equipment to determine proper fit. Their use should be restricted to specific high-risk areas in hospitals and referral centres, such as rooms where spirometry or bronchoscopy are performed or specialized treatment centres for persons with MDRTB.

If a respirator is needed, a certified N95 (or greater) respirator should be used. Respirators are different from facemasks. Surgical masks are made of cloth or paper. Use of a facemask does not protect health care workers, other staff, patients, or visitors against TB. Therefore, it is NOT recommended health care workers and other staff or visitors in TB and or HIV care settings wear them.

5. MULTI-DRUG RESISTANT TB (MDRTB)

TB disease that is caused by organisms susceptible to the first-line anti-TB drugs can generally be treated effectively without side effects from treatment, even in persons with HIV infection. TB disease caused by organisms resistant to at least the two most potent first-line drugs (Isoniazid and Rifampicin) is called multi-drug resistant TB (MDRTB). Treating MDRTB takes longer and requires drugs that are more toxic, more expensive, and generally less effective particularly in persons with HIV infection.

Because of the risk of severe morbidity and mortality to HIV-infected persons from MDRTB, persons with known MDRTB should receive routine care outside of normal HIV care settings.

HIV care facilities can obtain estimates of the prevalence of MDRTB in their community from the local TB programme. Through joint coordination and communication, the TB and HIV programmes can plan for how to care for these patients. In areas where MDRTB is rare, special arrangements can be made to provide HIV care for a MDRTB patient. In areas where MDRTB is more prevalent, specialized clinics can be established

(See Annex D. *Frequently Asked Questions about MDRTB*)

6. DRUG REHABILITATION CENTERS AND CORRECTIONAL INSTITUTIONS

In many areas the proportion of persons with HIV infection in drug rehabilitation centres and correctional institutions is much higher than in the general population. TB is spread even more readily in these settings than in outpatient settings because of the longer duration of potential exposure, crowded environment, poor ventilation, and limited access to health care services. The WHO has published guidelines for TB control in correctional institutions. The guidelines emphasize effective administrative and environmental controls, including screening detainees upon entry into the facility, and on a regular basis during times of prolonged detention.

Because the same TB infection control policies will protect HIV-infected and uninfected detained persons as well as staff, it is not necessary to know who in the population at the institution is HIV-infected to conduct effective TB infection prevention and control. However, voluntary, confidential HIV counselling and testing with consent can identify persons in need of HIV treatment with antiretroviral drugs, and prevention services such as preventive therapy for latent TB infection, which may contribute to TB control.

7. OPERATIONAL RESEARCH PRIORITIES

The recommendations in this policy are based on current state of the art knowledge about TB infection prevention and control in resource-limited settings. However, operational research can further inform practice. Areas in which carefully collected and analyzed data would be useful include:

- Screening tools and algorithms to quickly identify potentially infectious TB patients presenting for HIV services;
- Mechanisms for referrals and links between HIV and TB services;
- Strategies for increasing the proportion of health care workers who know their HIV status and are able to access adequate care, including antiretroviral therapy and Isoniazid preventive therapy;
- Designs for enhancing total air flow and air flow direction through controlled natural ventilation;
- Utility of ultraviolet germicidal irradiation in resource-limited settings;
- Feasibility of prolonged treatment with Isoniazid for prevention of TB in immunocompromised health care workers; and
- Interventions with health care workers that reduce stigma towards HIV and TB/HIV patients.

8. References

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- 8.18 TB/HIV: A Clinical Manual, Geneva, World Health Organization, 2nd edition, 2004
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