

TUBERCULOSIS INFECTION CONTROL PLAN

FACILITY Name TB Hospital

Date (dd/mm/20yy)

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List of acronyms

AFB's	Acid Fast Bacilli
AIDS	Acquired Immuno Deficiency Syndrome
ART	Anti-Retroviral Treatment
C&T	Counseling & Testing
CHC	Community Health Centre
CTX	Co-trimoxazole
ETR	Electronic TB register
HAART	Highly Active Anti Retro Viral Therapy
HAST	HIV/AIDS/STI/TB
HCW	Health Care Worker
HIV	Human Immuno-Deficiency Virus
INH	Isoniazid (TB treatment)
IPT	Isoniazid Preventive Therapy
KAB	Knowledge, Attitudes and Beliefs
MDRTB	Multi-Drug Resistant Tuberculosis
NDOH	National Department of Health
NTCP	National Tuberculosis Control Programme
OPD	Outpatients Department
PLWHA	People Living With HIV/AIDS
SOC	Standards of Care
TAT	Turn Around Time
TB	Tuberculosis
TBIC	Tuberculosis Infection Control
VCT	Voluntary Counseling and Testing
WHO	World Health Organization
XDRTB	Extremely Drug Resistant TB

1. Background and purpose

TB is the most common opportunistic infection and a leading cause of death in persons with HIV infection or AIDS. In high TB and HIV burden settings surveys have shown that up to 80% of patients admitted to a TB hospital may be co-infected with HIV.

Health care workers and other staff in TB hospitals are 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 thus be at higher risk of developing TB disease once infected.

Given the burden of disease in TB hospitals, coupled with an increased prevalence of multidrug- (MDR-) and extremely drug-resistant (XDR-)TB, nosocomial transmission of *M. tuberculosis* to health care workers and transmission of drug resistant strains to in-patients with drug-susceptible TB is of concern.

The purpose of this document is to assist health care managers and workers to minimize the risk of TB transmission to patients, people living with HIV and AIDS, professional and non-professional health care workers in _____ TB Hospital.

The first section of this document summarizes the findings of the baseline assessment conducted in _____ (month, year) and thereafter describes the different policies regarding TB infection control applicable in this hospital. A detailed work-plan is included in annex 1, followed by tools for monitoring and evaluation of the implementation of the plan.

The document is based on international and national guidelines on TB Infection Control: 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 (WHO, 2005), the WHO Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households (WHO, 2009) and the South African draft National Infection Prevention and Control Policy for TB, MDRTB and XDRTB (NDOH, 2007).

2. TB Infection control baseline assessment findings

A baseline assessment was conducted in _____ 200__ (month, year), assessing TB infection control practices as well as Knowledge, Attitudes and Beliefs (KAB) of clinical (professional) and non-clinical (non-professional) staff.

A summary of the findings is provided in the table below:

Aspect	Findings
Knowledge, Attitudes, Beliefs	
Infection Control Management	
Infrastructure	
Patient triage (based on level of infectiousness)	
Cough etiquette/respiratory hygiene	
Investigations for case monitoring and drug susceptibility testing for patients not responding to first line treatment	
Environmental control measures (natural ventilation, mechanical ventilation, UVGI, other), including maintenance	
Patient education and awareness	
Staff capacity building	
Staff protection	

3. Infection Control Team

The TB Infection Control (TBIC) team is integrated in the general Infection Control Committee (delete if not applicable).

The team is comprised of the following members:

	Name	Designation
1	(Chair)	
2	(Vice chair)	
3	(Scribe)	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

16		
17		

Indicate who is chairing the meetings (this could be the person who has the overall responsibility as in section 4) and who is the scribe.

The (TB) Infection Control team will meet monthly on the _____ (first, second, etc.) _____ day of the month (or according to other meeting schedule).

4. Roles and Responsibility

Lead: _____ (name), _____ (designation) has the responsibility for overseeing the implementation of these policies and its procedures, calling Infection Control meetings, and reports to _____ (name), _____ (designation).

The roles of the (TB) Infection Control team include (elaborate):

- Development of policies on TB Infection Control
- Implementation of TB Infection Control plan
- Coordination of activities around TB Infection Control
- Monitoring of implementation of TB Infection Control plan
- Evaluation and revision of TB Infection Control plan

5. Policy areas involved:

- a. Providing face masks or tissues to TB patients with infectious TB and providing waste containers for disposal of tissues and masks
- b. Separating TB patients in the wards according to infectiousness
- c. Separating infectious TB patients not responding to first line TB treatment (suspected of having drug resistant TB) from other TB patients
- d. Clinical management of TB cases:
 - a. Access to TB diagnostic services
 - b. TB treatment initiation
 - c. Confirming that TB cases are adhering with treatment
- e. Integration and communication between TB and HIV services
- f. Using and maintaining environmental control measures
- g. Using personal respiratory protection equipment
- h. Providing confidential TB and HIV services to health care workers and staff

- i. Training and educating staff on TB, TB control, and the TB infection control plan
- j. Monitoring the TB infection control plan's implementation

6. Description of Interventions

A: Instructions on cough etiquette/respiratory hygiene

Procedures:

- i. All patients admitted to the TB hospital with infectious types of will be advised of the importance of cough hygiene and will be handed tissues (or pieces of cloth) and instructed to cover their mouth and nose when they cough on admission and during health education sessions taking place regularly. Alternatively, clients should be given a face mask, and asked to wear it while indoors. Clients should also be instructed to dispose of used tissues or masks in identified no-touch receptacles and not on the ground.
- ii. No-touch receptacles for disposal of used tissues, cloths and masks should be available in the wards and passages.
- iii. Tissue disposal bins should have lids and plastic bags.

B: Separating TB patients in the wards according to their level of infectiousness

Procedures (**delete if not applicable**):

- i. Patients with the highest level of infectiousness (as per sputum smear results) will be nursed in the ward (sections) with the most optimal ventilation (natural or mechanical)
- ii. Patients who are non-infectious (such as patients with extra-pulmonary TB with negative sputum smears) will be nursed separately from patients with infectious TB
- iii. Separate sections of the wards or separate wards will be dedicated to patients:
 - a. Patients with 2-3+ smear positive PTB
 - b. Patients with scanty – 1+ smear positive PTB
 - c. Patients with smear negative (with or without culture positive) PTB
 - d. Patients with extra-pulmonary types of TB without evidence of PTB
 - e. Patients with confirmed or suspected drug resistant PTB (see section C)

C: Separating infectious TB patients not responding to first line TB treatment (suspected of having drug resistant TB) from other TB patients

Procedures:

- i. Isolation or side wards will be dedicated to patients with:
 - a. Confirmed MDRTB or XDRTB
 - b. Suspected MDR TB or XDRTB
- ii. These wards should have adequate environmental infection control measures in place

D: Clinical management of TB suspects and confirmed TB cases: TB diagnostic services and TB treatment

Procedures:

- i. All clients admitted to the TB hospital without documented sputum results should submit two (2) specimens for TB microscopy (preferably one specimen on the spot and a second early morning specimen) and one (1) for TB culture (for HIV+ clients), in adherence with the National TB Control (NTCP) guidelines.
- ii. Sputum collection should be done safely in a separate, well ventilated area, preferably outdoors, under supervision by a staff member (standing behind the patient).
- iii. Staff should ensure that the quality of sputum specimens is adequate
 - a. Hypertonic saline nebulizations should be used to induce sputum and to improve sputum specimen quality
- iv. Efficient sputum specimen transfer to the laboratory should be ensured
- v. A tracking system for sputum results should be implemented
 - a. Sputum turn-around time (TAT) should be monitored
- vi. A sputum specimen register should be kept for all patients who have sputum investigations done in the hospital
- vii. TB treatment should be initiated as soon as possible after admission to the hospital (if applicable)
- viii. Adherence to treatment should be ensured (elaborate on local methods to ensure adherence)
- ix. The national TB control program register (ETR: Electronic TB Register) should be completed for all patients with confirmed TB who are receiving TB treatment in the hospital
- x. The National TB control program transfer forms should be used for patients on discharge or upon transfer to another healthcare facility. Every effort should be made to ensure that the patient has reached the receiving facility and continues with TB treatment for the appropriate period of time.

E: TB/HIV services integration

Procedures:

- i. All TB patients who are admitted to the TB hospital and who do not know their HIV status should be offered HIV counseling and testing.
- ii. All HIV positive TB patients should receive co-trimoxazole prophylaxis (unless allergic).
- iii. HIV positive TB patients should have access to HAART (Highly Active Anti-Retroviral Treatment) if eligible according to the latest national ART guidelines.
- iv. All HIV positive MDR and XDR patients should be started on HAART as soon as they tolerate their second line TB treatment

F: Using and maintaining environmental control measures

Procedures:

- i. _____ (name), _____ (designation), 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). A sample housekeeping checklist is included in annex 4.
(Elaborate on specific natural/mechanical environmental control measures in place in the facility.)
- 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.
- iv. UVGI equipment (if available) should be installed by a certified company and maintained according to the specifications.

G: Using personal respiratory protective equipment

Procedures:

- i. Health care workers involved in high-risk procedures or situations should have access to and correctly use N95 respirators
- ii. High risk procedures and situations include (delete those not applicable):

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- a. Wards for patients with infectious PTB
- b. Sputum induction or other cough-inducing procedures
- c. Observing sputum collection
- d. Close proximity to a patient with MDR or XDR TB
- e. Bronchoscopy suites
- f. Autopsy areas
- g. Spirometry rooms
- h. Surgery on potentially infectious TB patients

H: 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. They should also be given information about relevant TB diagnosis and care resources.
- ii. Health care workers and other staff should be informed about the special risks for TB for HIV-infected persons.
- 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 de-stigmatization of TB and HIV.
- v. [redacted] 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 the person is determined to be non-infectious by (elaborate if necessary):
 - a. Having completed at least two weeks of NTCP standard therapy; and
 - b. Exhibiting clinical improvement; and
 - c. Having continued medical supervision and monitoring of treatment until cured; and
 - d. Where possible, having had two consecutive negative AFB sputum smears obtained on two different days with at least one morning specimen.
 - e. Staff member health information should be kept confidential
- vii. Include specific information on staff health clinic or other.

I: Training of staff on all aspects of TB and the TB infection control plan

Procedures:

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- i. All staff (professional and non-professional) should receive training on TB transmission, TB/HIV co-infection, and TB infection control at the time of hire and on an annual basis thereafter.
- ii. _____ is the designated staff person to provide training to new staff as they are hired and to maintain a log indicating who has had initial training.
- iii. _____ 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 be stand alone TB infection control training.

J: Monitoring the TB infection control plan's implementation

Procedures:

- i. Choose indicators to monitor from the provided list in annex 3.
- ii. Determine the frequency of the infection 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.
- iii. Evaluate the implementation of the separation policies
 - a. Were clients with infectious TB separated according to the policy?
 - b. Were patients with non-infectious TB admitted to the ward for highly infectious cases?
 - c. Were patients suspected to have drug resistant TB correctly separated/isolated?
- iv. Evaluate the success of TB diagnostics and follow-up
 - a. Were patients not responded to first line treatment evaluated for drug resistant TB?
 - b. Were sputum DST results followed up in a timely manner?
 - c. Were patients discharged followed up to ensure that they reached their facility for follow-up?
- v. Evaluate the training process
 - a. Did all new staff receive training on TB infection control during their induction?
 - b. Did all staff receive annual re-training on TB infection control?
- vi. Revise the infection control plan to reflect changes in staff responsibilities, policies, and/or procedures

Lead: _____ (name), _____ (designation), has the responsibility for overseeing the evaluation of the TB infection control policies and its

procedures, and reports to _____ (name)
_____ (designation).

_____ (name), _____ (designation), has the responsibility for filling out the “patient triage form” (annex 2) on a daily basis (instructions in annex 2).

_____ (name), _____ (designation), has the responsibility for conducting follow up on clients referred to a TB diagnostic facility and recording the outcomes of their investigation in the log.

_____ (name), _____ (designation), has the responsibility to summarize and present the results of the screening process to the TB Infection Control committee periodically.

Annex 1: Work-plan

This work-plan contains suggested activities for the implementation of the different TB Infection Control policies. Sections that are not relevant for the hospital can be deleted, and other activities can be included if necessary.

Overall aim: Reduction of nosocomial transmission of <i>M. tuberculosis</i> to PLWHA and HCWs through TB and HIV services integration							
	Responsible	Timeframe				Indicator	Comments
		Q1	Q2	Q3	Q4		
Goal 1: Implement policy on occupational and nosocomial transmission of TB among health care workers and PLWHA							
Objective 1.1: To ensure all patients sputum results are reviewed on admission							
Activities							
Review of sputum results on arrival	IC coordinator, ward nurses						
Sputum investigations for patient with PTB without documented AFB/Culture results							
Objective 1.2: To ensure cough etiquette is implemented							
Education of staff and patients on cough etiquette and general principles of TBIC						Number of education sessions conducted	
Availability of tissues, cloths or face masks for TB patients							
Availability of waste bins for safe disposal of tissues, cloths and face masks							
Development of posters on cough hygiene						Number of posters displayed in facility	
Administration of tissues to TB patients with a cough							
Objective 1.3: Separation of TB in-patients according to level of infectiousness							
Dedication of sections of the ward or separate (side) wards to patients: <ul style="list-style-type: none"> With 2-3+ smear positive PTB With scanty-1+ smear positive PTB With smear negative (culture neg or pos) PTB With EPTB (without PTB) With confirmed/suspected drug resistant PTB 						Number of separate sections/wards available for listed categories of pts	
Education of patients on need for separation based on infectiousness						Number of	

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						education sessions conducted	
Objective 1.4: Separation of patients not responding to first line TB treatment							
Ensure availability of separate wards for patients with suspected and confirmed drug resistant TB						Number of patients with (suspected) MDR/XDR nursed separately from other patients	
Ensure adequate environmental controls in separate wards							
Objective 1.5: Clinical management							
Ensure the availability of nebulizers for sputum induction						Number of nebulizers available (per unit)	
Implement sputum induction using hypertonic saline nebulization						% of specimens obtained with sputum induction	
Identify designated well ventilated area for sputum collection							
Ensure safe sputum collection according to policy							
Enter patients who have sputum taken in laboratory register						% of TB suspects entered in suspect register	
Obtain sputum C&T test when indicated (re-treatment patients, patients not converting after 3 months of TB Rx)						% of C&S tests done	
Ensure efficient specimen transfer							
Implement a system for tracking laboratory results							
Monitor sputum turn around times (TAT), including for DST results						Average TAT (hours/days) % of specimens for AFB with TAT < 48 hours	
Objective 1.6: Ensure adequate management of patients with confirmed TB							
Ensure prompt TB treatment initiation for patients admitted to the hospital							

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Ensure adherence to TB treatment						% of TB patients completing treatment	
Enter all TB cases in the NTCP TB register (ETR) and enter all relevant information on smear conversion and treatment outcome if applicable						SCR, treatment completion rate, cure rate	
Objective 1.6: Ensure use and maintenance of environmental control measures							
Implement policy on natural ventilation							
Complete daily checklist on opening of windows and doors (if applicable)						% of daily checklists completed	
Installation/supply of environmental controls (specify applicable measures)						Number of environmental controls installed	
Switch on all mechanical fans throughout hospital						% of fans used correctly	
Ensure correct airflow							
Checking of environmental controls							
Maintenance of environmental controls, including UVGI (if applicable)						% of environmental controls checked and maintained regularly	
Objective 1.7: Use of personal respiratory protection							
Supply of N95 respirators for staff involved in high-risk procedures/situations (specify applicable)						% of staff involved in high risk procedures using N95	
Training of staff on correct use of N95 respirators						Number of staff trained	
Regular monitoring of respirator use in wards						% of staff wearing respirators in wards (per month)	
Objective 1.8: Provision of confidential TB and HIV services to staff							

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Education of staff on TB signs and symptoms and TB/HIV						Number of staff trained	
Encouragement of staff to undergo VCT						Number of staff undergoing VCT	
Provision of confidential TB diagnostic services for staff members							
Maintain a confidential register of staff members diagnosed with TB							
Objective 1.9: To ensure staff are trained on TB and TB infection control							
Training of professional and non-professional staff on TB transmission, TB/HIV integration, TB Infection Control and the TB Infection Control plan						Number of staff trained	
Keep register of trainings attended						Number of training sessions conducted	
Objective 1.10: To ensure quarterly monitoring and evaluation of the implementation of the TB IC plan							
Identification of staff member responsible for collection of data on a quarterly basis							
Compilation of reports on the implementation of the TB Infection Control plan						Number of quarterly reports compiled	
Evaluate TB Infection Control plan for update and revision if needed							
Review plan annually							
Goal 2: Ensure effective management of TB/HIV co-infection							
Objective 2.1: Integrate TB and HIV services							
Routine HIV counseling and testing to TB patients admitted to the hospital						% of TB patients pre-test counseled for HIV Testing uptake among TB patients	
Provision of co-trimoxazole prophylaxis to HIV+ TB patients						% of HIV+ TB pts started on CTX	
Provision of HAART to eligible HIV+ TB patients						% of HIV+ TB pts started on HAART	
Provision of HAART to all MDR and XDR patients						% of HIV+	

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						MDR/XDR TB pts started on HAART	
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