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A practical guide for TB and HIV service Integration at Primary health care facilities



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LIST OF ABBREVIATIONS AND ACRONYMS

ART	Anti-retroviral therapy
CHW	Community Health Worker.
CPT	Cotrimoxazole Preventive therapy
DOT	Directly Observed therapy
DR-TB	Drug-resistant TB
HAST	HIV/AIDS, STI and TB
HCW	Health Care workers
IPT	Isoniazid Preventive therapy
NIMART	Nurse initiated ART
NDoH	National Department of Health
NTCP	National Tuberculosis Control Programme
NSP	National Strategic Plan for South Africa (2007-2011)
PHC	Primary Health Care
PMTCT	Prevention of mother to child transmission of HIV
S Africa	South Africa
SANAC	South Africa National AIDS council
TBIC	TB Infection Control
UVGI	Ultra-violet germicidal irradiation
XDR	Extensively-drug resistant TB
WHO	World Health Organization

Introduction

President Zuma in his speech on World AIDS Day (1/12/2009) committed to making HIV services including antiretroviral therapy (ART), available at all primary health care (PHC) facilities in South Africa. With almost 17.6%¹ of the South African population infected by HIV, this is an essential step in facilitating access to HIV care and treatment, and will save many lives. However, as the health care sector geared itself to towards this goal, it became apparent that this placed pressure on an already overstretched health care system.

Several role players including facility, sub-district and district health managers requested for a simple, 'hands-on' guide to help them implement integrated TB/HIV services including ART, at PHC level.

What is the purpose of this document?

This document is a guide for facility managers and health care workers (HCWs) when integrating TB and HIV services including initiation and management of ART at PHC facilities in the South African Public Health care sector.

The primary target is PHC facility managers, and secondarily those who support PHC facilities, namely; PHC supervisors, sub- district and district management teams.

How is the document structured?

This guide is a 'hands-on' approach to implementation of integrated TB/HIV service delivery. Each section is complemented by 'summary boxes', encapsulating the key messages of the section. Appendices that follow contain supportive material and references to additional guidelines and resources to assist with integrated care.

Frequently cited obstacles in integrated TB/HIV services in the South African context are addressed.

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REFERENCES

1. Why is TB/HIV integration necessary?

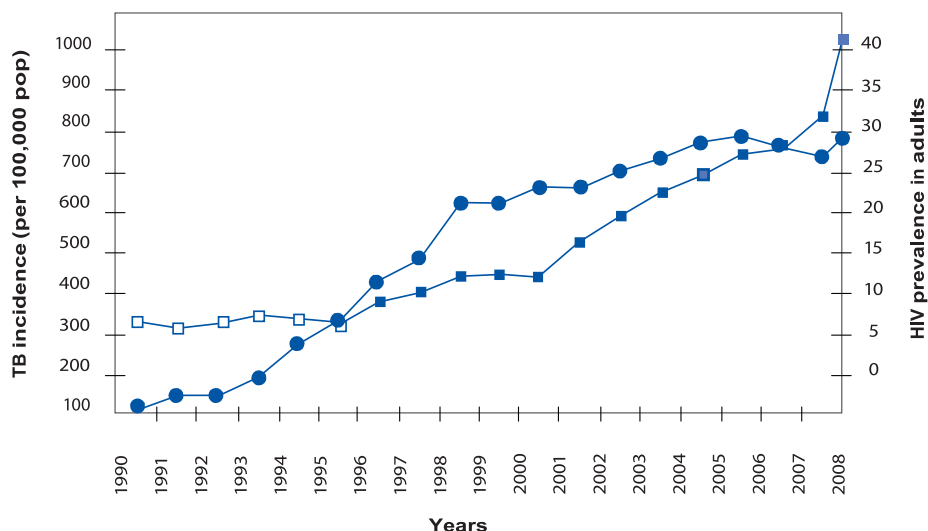
1.1. Epidemiology of TB and HIV in SA

South Africa is facing one of the worst dual epidemics of HIV/AIDS and tuberculosis (TB) worldwide. The annual antenatal HIV sero-prevalence survey indicates that 29.3% of pregnant women aged 15-49 years are HIV-positive (2008), while HIV prevalence among S. African adults is estimated at 17.6%, with an estimated 5.27 million S. Africans infected with HIV (2008)¹. Regarding TB, the reported incidence has increased by almost 400% in the past 15 years, reaching 960/100,000 south Africans in 2008². According to WHO, S.Africa ranks third highest in the world in TB burden². An estimated 71% of TB patients are co-infected with HIV². In some S. African townships, the prevalence rate of latent TB infection (LTBI) reaches 88% in the age group 31-35 years³. The HIV epidemic has also had a negative effect on TB management and patients' response to TB treatment. TB disease in those co-infected with HIV is associated with higher mortality both during and after successful TB treatment. The StatsSA report into causes of death in 2007 indicated that TB is the leading cause of death in every municipal district in S.Africa and accounts for 15% of childhood death. Anecdotal evidence suggests that HIV positive patients are more likely to relapse following successful completion of TB treatment. HIV co-infection might be a risk-factor for acquisition of drug-resistant TB (DR-TB). HIV-positive people who acquire extensively drug-resistant (XDR-TB) have a high risk of mortality (approaches 100%) despite viral suppression with anti-retroviral therapy (ART) ⁶.

1.2 Health System response

S. Africa National TB Control Program (NTCP) has struggled to achieve international targets and TB-related goals.

Figure 1(a): TB Incidence and HIV Prevalence in S. Africa, 1980-20074(updated 2008)



Prior to the HIV epidemic, this inability to achieve targets could have been attributed to lack of political will on account of societal complacency regarding TB. International and local TB control programmes were slow to respond to the HIV epidemic. Since the 1980's, the TB prevalence in all sub-Saharan African countries has increased.

The DOTS programme has not been able to control TB in all countries with high HIV sero- prevalence rates⁷. Untreated HIV disease in TB patients leads to high mortality and consequent failure to achieve WHO TB targets related to cure and treatment completion.

In addition, facilities providing comprehensive care and management for HIV-infected adults and children have to a large extent failed to include TB prevention activities and services such as TB infection control (TBIC) and INH preventive therapy (IPT). Such omissions ignore the fact that re-infection with *Mycobacterium tuberculosis* (as opposed to relapse of previous disease) is responsible for numerous cases of active TB amongst HIV-infected patients⁸, and that one of the prime locations for TB transmission is congregate settings such as waiting rooms of health care facilities.

There continues to be a gap in access to integrated TB and HIV services in S. Africa. TB services are relatively accessible with drugs and treatment points at PHC facilities, whereas ART has mainly been available through tertiary and more recently secondary healthcare facilities and hospitals. The fact that to date only approximately 1 million persons are on ART, despite the goal of the National Strategic Plan (NSP) to reach over 3 million by the end of the NSP period, may be partially attributable to inadequate access.

ART availability at PHC level and integration with TB services has been a National Department of Health priority since April 2010.

It is clear at this stage that this dual epidemic involves “Two diseases that affect one patient and one community”. It therefore calls for a comprehensive approach that is patient-centered and fully integrates TB and HIV services within both curative services

While a number of factors have contributed to the increase of TB in S. Africa, a significant driving force has been the concurrent HIV epidemic.

- HIV increases the risk of developing active TB, in those with latent TB infection (LTBI), from 10% lifetime risk to 10% per year.
- HIV promotes progression to active TB disease in those with recently-acquired and latent TB infection.
- HIV increases the rate of recurrence of TB.
- People with active TB who are co-infected with HIV have a higher risk of mortality compared with HIV- negative cases (16-35% in HIV-positive persons vs. 5-8% in HIV-negative persons).
- Active TB increases the risk of HIV-associated mortality both during and after successful TB treatment.

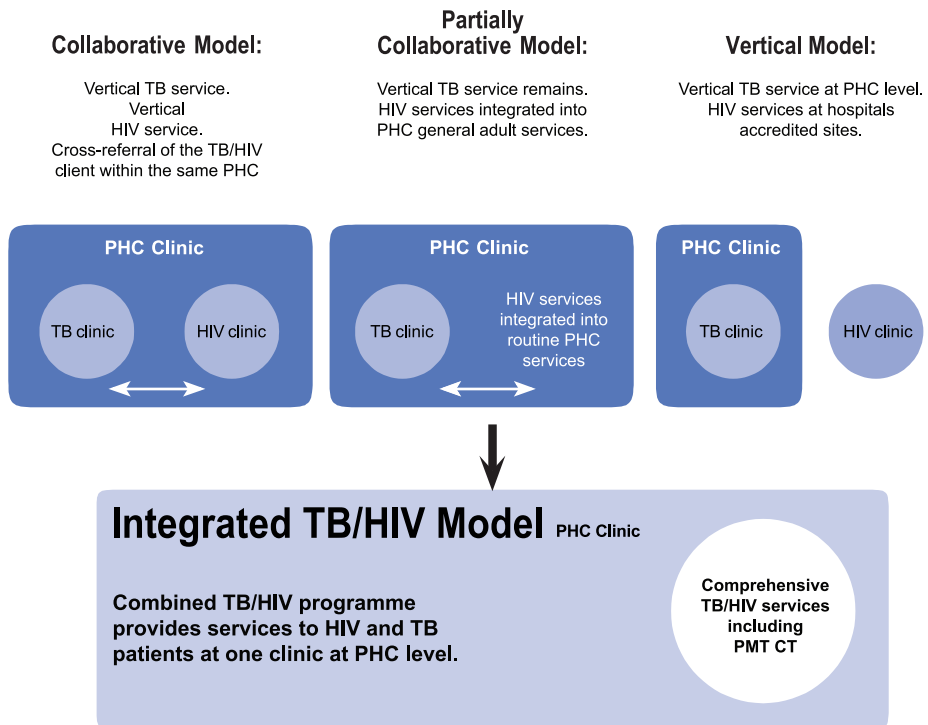
and preventative maternal and child health (PMTCT) services. The unprecedented scale of the TB-HIV epidemic demands urgent, effective and co-coordinated action, with commitment of both programmes to provide integrated prevention, care and treatment services. SANAC endorsed TB/HIV integrated services in 2009.

1.3 Integration of TB/HIV services

Public sector facilities have increasingly realized the need for TB and HIV services to work together to improve clinical outcomes for co-infected patients. This has led to various forms of collaboration (or cross-referral) between vertical TB and HIV programmes. While collaboration has been a useful step to facilitate incorporation of HIV-related issues amongst TB patients by the NTBCP, a fully integrated TB/HIV service makes the provision of a 'one-stop shop under one roof' approach much easier ensuring comprehensive care to a co-infected patient.

Figure 1(b) illustrates varying levels (models) of TB/HIV collaboration.

Figure 1(b) Objectives of TB/HIV integration



1.4 Objectives of TB/HIV integration

- Decreasing TB and HIV transmission
- Decreasing morbidity and mortality from TB and HIV
- Decreasing morbidity and mortality from other HIV-related illnesses
- Improving the efficiency of healthcare services
- Creating a patient centered approach for management of co-infected patients

1.5 Specific objectives

This model of integrated TB/HIV service delivery has potential benefits for both programs:

1.5.1 Intensified (ICF) case-finding

- TB symptom screening is performed at every clinical visit in all PLWHA
- Earlier diagnosis of smear-negative pulmonary TB in PLWHA is achieved through appropriate use of smear negative algorithm by trained clinicians
- Earlier diagnosis of extra-pulmonary TB (EPTB), including in children
- Screening of TB contacts for active TB
- HIV testing and counseling (HCT) is offered to all TB patients including pregnant women
- All children of HIV-positive adults are tested for HIV
- Newborns and infants of HIV positive women have access to DNA PCR testing for early infant diagnosis (EID) of HIV infection

1.5.2 Improved access to care and treatment for TB and HIV

- Prompt TB treatment for all those diagnosed
- Prompt use of Cotrimoxazole preventive therapy (CPT) in all PLWHA who are eligible (WHO stage ≥ 2 , and CD4 < 350 cells/mm³)
- Prompt initiation of ART in all PLWHA who are eligible including pregnant women and children

1.5.3 Improved outcomes related to TB treatment and ART (including PMTCT)

- Comprehensive health care delivered by trained, competent HCWs
- Use of patient-centered adherence support measures (already in place for ART) to improve adherence and reduce TB and ART defaulter rates
- Adherence support offered by trained community health worker (CHW)
- Standardized approach to treatment and monitoring (already in place in the TB programme)
- Convenient access to healthcare services which are closer to patients' homes
- A 'one-stop service' for patients co-infected with HIV and TB

1.5.4 Prevention of new cases of active TB

- Trace all TB contacts and provide child contacts < 5 years with 6 months of IPT once active disease is excluded
- Appropriate use of IPT in PLWHA
- Implementation and enforcement of TBIC measures in health facilities
- Increased accessibility to ART

1.5.5 Prevention of new cases of HIV infection

- Promote and provide condoms
- Increased access to measures to prevent mother- to-child transmission (PMTCT)
- Counseling opportunity for those already infected with HIV in order to prevent transmission of HIV to others
- Counseling of HIV negative TB patients to 'stay negative'

Key Messages

- TB patients who are HIV-positive have a higher risk of mortality compared to those who are HIV-negative.
- HIV-positive people are more likely than HIV-negative people to become ill from TB.
- TB is the leading cause of mortality in people infected with HIV.

1.5.6 Improved delivery of health care services

- Figure 1(c) shows the time spent by HCWs when providing integrated TB/HIV services as opposed to separate TB services. In addition to saving clinical time, administration and counselor staff time will be saved by omitting the following tasks in the same month:
 - retrieving the patient's file;
 - directing the patient to the correct waiting area and consulting room
 - Managing the patient's expectations while waiting to be seen by a nurse;
 - determining whether the patient has come to collect their repeat TB and ART prescriptions; and
 - following up a patient that failed to come back for TB and/or ARV treatment.

Figure A3: Comparison of patient consultation time in a vertical versus an integrated program

Time spent for consultation with patient	Integrated TB/HIV repeat consult = Less time	Separated TB and HIV repeat consult = More time	
		TB repeat consult	+ ART repeat consult
	Check combined patient file for monitoring investigation results incl. AFB, culture, ART blood results and previous notes	Check combined TB file for monitoring investigation results incl. AFB, culture and previous notes	Check patient ART file for monitoring investigation results incl. ART blood results and previous notes
			Phone lab or send CHW to fetch missing results*
	Review patients vital signs	Review patient's vital signs	Review patient's vital signs
		Consult with patient medical history and TB adherence since last visit	Consult with patient re medical history and ARV adherence since last visit
	Examine patient HIV clinical management*	Examine patient HIV clinical management*	Examine patient HIV clinical management*
		Determine any required TB monitoring sputum, send for sputum collection*, lab form*	Determine any required TB monitoring sputum, send for sputum collection*, lab form*
		Dispense TB RX record in patient TB file and facility register	Dispense ART, record in patient ART file and facility ART register
	Provide single TCB date		

* not always required, only if necessary

2. Principles and guidelines for integrated TB/HIV services

Integration of TB and HIV services implies that existing guidelines for TB case management, TB infection control, HIV/ART and PMTCT should be adhered to by a single service provider. The latest clinical guidelines are referred to in Appendix V.

The key principles are:

2.1: Principle 1 All services required by patient are provided by the same healthcare provider during the same visit - a 'one-stop service'

Integration of TB and HIV services within primary healthcare means that each client receives all the services they require during one consultation, including within ante-natal care. This can be facilitated by using the 'Roadmap of care' for integrated TB and HIV services including ART at PHC facilities shown in Figure 2(a).

2.2: Principle 2 Offer Quality services that are patient-centered

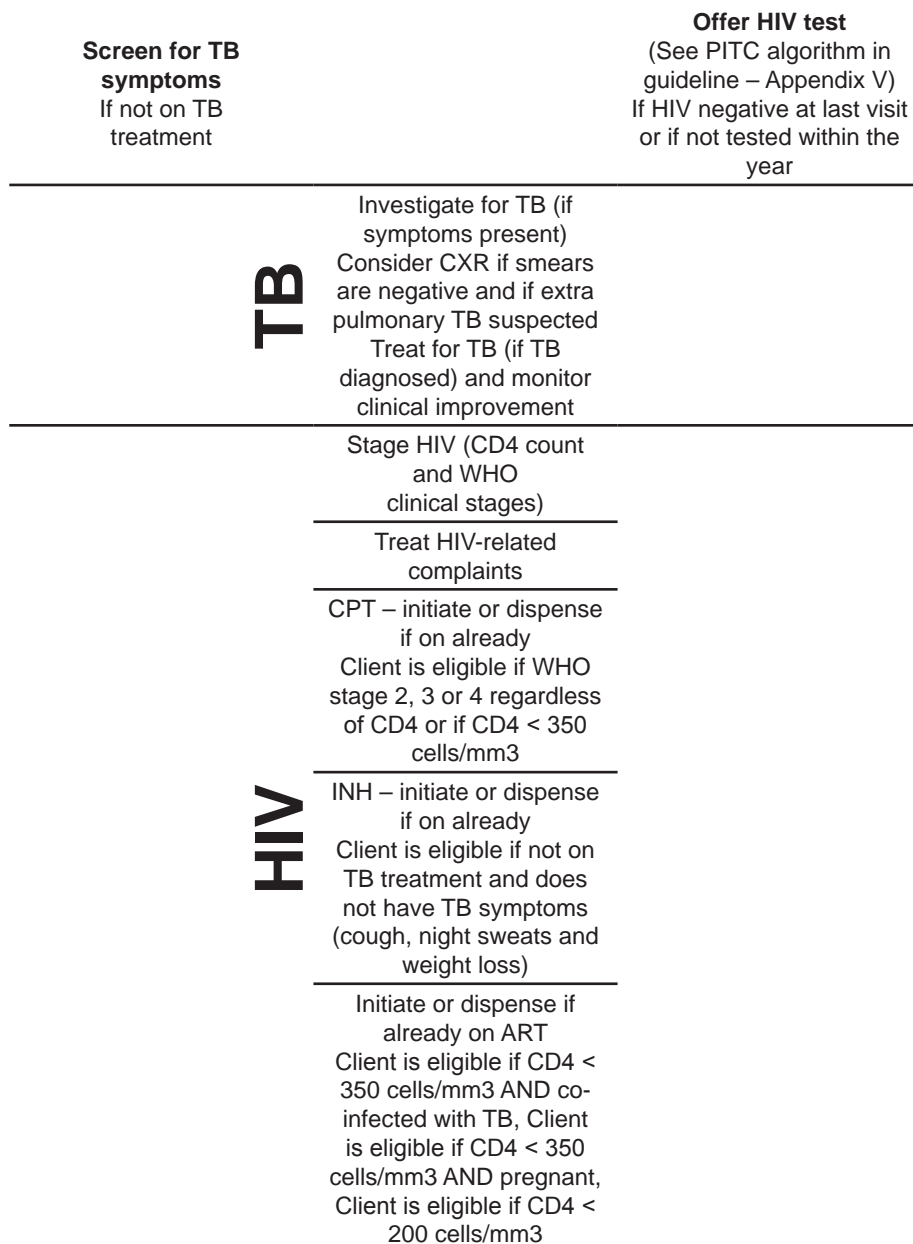
The goal is to have comprehensive TB/HIV healthcare services being delivered by trained, competent and confident HCWs. Achieving high quality TB/HIV service delivery requires ongoing training preferably through on-site mentoring. TB staff need to be trained in HIV care and treatment, while those already delivering HIV care and treatment need to be trained in TB case management.

A decentralized 'one-stop' service at PHC level will ensure accessibility and time efficiency for patients

2.3: Principle 3 Task sharing and Task shifting

Task sharing refers to the same level of HCW taking responsibility for both TB/HIV services. Task shifting refers to the rational distribution of tasks among levels of healthcare staff, with specific tasks moved from more highly qualified HCWs to those with less qualifications in order to make efficient use of the available human

Figure 2(a): Road map to provision of integrated TB/HIV care at PHC
 Follow this algorithm at every visit to ensure that all clients receive all services they need



resources without compromising quality.

Examples of TB/HIV service related task shifting is shown in the table 2 (a)

**2.4: Principle 4: Benefits to HCWs and healthcare facilities
Increased efficiency of the services by reduced work load**

This is achieved by:

- avoiding the duplication of administrative and clinical work ((Figure A) reducing the need for hospitalization since better clinical outcomes are expected
- integration of data collection materials (Chapter 4).

Table 2(a): Examples of TB/HIV service related task shifting

Health care professional	Traditional role	Expanded (task-shifting) role to achieve integrated TB/HIV services at PHC facilities
Doctor	Initiating patient on ART	Managing complicated HIV and TB cases referred by PHC facility nurse
Professional nurse	Managing clinically stable patients already initiated on ART	Prescribing and dispensing ART to new patients(see appendix 3) Managing patients on ART
Counselor	Adherence counseling HIV pre and post test counseling	Finger-prick to obtain blood for rapid HIV testing and interpreting results Screening for TB symptoms
Administrative staff	Data collection	Help to enforce TB infection control measures through education of waiting patients in cough etiquette/hygiene
Community care workers	Adherence support for TB or ART	Adherence support for both TB and ART and defaulter tracing for both

2.5: Principle 5 Community-based services are necessary to strengthen integrated TB/HIV services

Optimal integration of TB/HIV services requires certain services to be further decentralized to the community, where access is easier and more convenient for patients. TB and HIV patients should be linked with CHWs), who should be trained and supervised to assist with:

- prevention, case-finding, care and treatment of TB and HIV
- handing out certain medications (e.g. CPT, IPT and iron/folate)
- TB and ART defaulter tracing

CHWs should also assist with services related to mother and child health (MCH), infant feeding, non-communicable disease (E.g. diabetes and hypertension) and violence/injury.

2.6: Principle 6 Team approach

Successful implementation of integrated TB/HIV services requires institutional and individual collaborative responses. Human resources from a sub-district can be shared. A roving ART clinical team which includes a doctor can see patients at clinics.

Table 2(b) lists activities that will facilitate implementation of integrated TB/HIV service delivery

Table 2(b): Team activities in integrated TB/HIV service delivery

Activity	Brief description
Staff swap (exchange)	A PHC facility sends a staff member to a facility that is experienced at providing ART. That facility reciprocates and sends an experienced member of staff to the PHC facility. Each staff member learns and teaches staff at the health facility being visited. Such staff swapping can occur for several days to weeks by arrangement.
Roving ART clinician team	Experienced clinicians from facilities that are experienced at ART provision can offer a consultative service at the PHC on a set day or days of the month. PHC staff can request complicated cases to return on these specific days and receive in-service training using a case-by case approach. In addition, the clients receive quality care.
Specialist clinic days	A regional facility with experience in providing ART can establish 'specialist clinic days' when patients from PHCs can be referred to the regional facility for specialist care.
Telephonic consultation service	Named healthcare professionals who are experienced at providing ART and who work at local/regional healthcare facilities can be consulted by telephone for advice regarding management of difficult cases seen at the PHC facility. The update on-call roster from local hospital should be made available to PHC facilities.
Journal club/in-service training session	Regular in-service training can be offered at the facility by PHC staff themselves, who undertake to present specific topics (such as reviews of guidelines or training manuals) for integrated TB/HIV care.
Site visits by ART experienced professionals	Experienced ART professionals from facilities that are experienced at ART provision can visit PHC sites to offer mentoring and support to the PHC facility manager. This may be especially useful in the preparatory and initial stage of ART service provision. (see guideline for clinical mentoring – appendix 2.6)

2.7: Principle 7 Ensure TB Infection Control

TBIC is an essential component of integrated TB/ HIV services. Nosocomial (hospital or facility based) transmission of TB can be prevented if the basic principles of TB infection control are adhered to.

Infection control refers to interventions required to prevent transmission

of microorganisms from infected patients to others, including HCWs. Types of infection control precautions include:

- standard precautions which should be applied regardless of disease or type of institution
- transmission-based precautions which should be applied in specific circumstances depending on transmission routes of various diseases.

Appendices II and III provide template TB infection control floor plan and a baseline TB infection control assessment tool.

The adjacent information box summarizes the key principles of TBIC and their order of importance when addressing TBIC in a PHC facility

Key principles of TB infection control

Smear positive TB cases are the most infectious of TB patients. Usually, these persons present many times to health care facilities before being diagnosed with TB. Hence, our services must screen all clients entering the facility, and must be alert at all times to implement TB infection control measures. Once TB patients are on treatment, they become much less infectious. TB infection control measures can be categorized into three categories.

Administrative controls

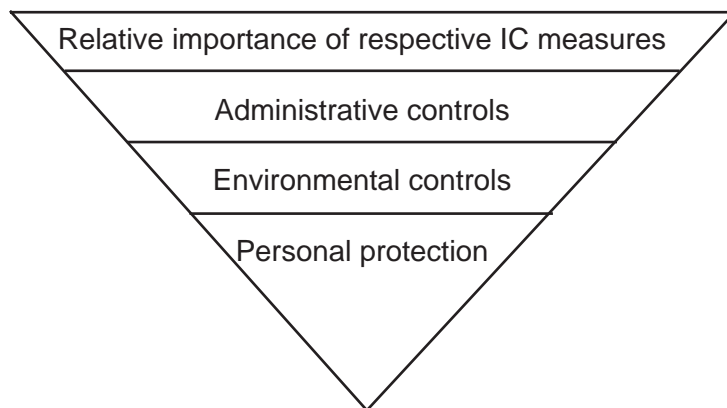
- Screen ALL patients for cough as they enter the facility.
- Provide all coughing patients with mask or tissues, and educate all patients to cover their cough.
- ALL known sputum positive TB patients and any coughing patient should be seen first.
- Reduce patient waiting time in facilities. Remember to reduce waiting time associated with patient registration, blood or pharmacy collection if this takes place inside the facility.
- Consider performing routine tasks such as weighing patients, and health talks outside, near the outside waiting area.

Environmental controls

- Provide external sheltered waiting areas where possible.
- Provide external access to consulting rooms. If consultation rooms have to be accessed from inside allow only 2-3 patients at a time to wait outside clinic room door directly.
- Ventilate consultation rooms by opening windows.
- Position furniture in consultation rooms so that air flow is directed away from staff and towards patient.
- Perform sputum collection outside or in a specifically designated well ventilated sputum booth.

Personal Protection

- Advise all staff in contact with infectious patients to use N95 respirators for personal protection.
- Ensure that staff are aware of their HIV status as HIV increases a person's risk of TB infection and disease.
- Encourage staff to know their HIV status, and to take Isoniazid (INH) preventative therapy (IPT) if HIV positive with no symptoms of TB.



3. Roles and responsibilities in the delivery of integrated TB/HIV services

3.1 TBHIV Management at PHC facilities

The delivery of integrated TB/HIV services at PHC level principally depends on the commitment of the staff.

The goal is that a patient with both TB and HIV infections receives comprehensive care, treatment and support in a single visit. What was previously the TB nurse becomes the TB/HIV nurse. In addition, antenatal care and PMTCT services need to include management of both TB and HIV.

Table 3(a) sets out the specific roles and responsibilities of various categories of HCW in provision of integrated TB/HIV care. HCW include facility manager, registered and enrolled nurses, counselors, administrators, general assistants and community care workers. The determination of these roles and responsibilities encompasses principles of task sharing and task shifting.

Table 3(a) Primary healthcare facility

Facility staff member	Role at PHC facility	Specific responsibilities towards integrating TB and HIV services at PHC facilities
Facility Manager	Administrator and facilitator	<p>Financial administration</p> <ul style="list-style-type: none"> • Ensure that requirements for TB and HIV services are included in annual facility budgets <p>Human resource management</p> <ul style="list-style-type: none"> • Ensure that previously designated TB and HIV care clinical staff provide integrated TB/ HIV care to facility patients <p>Co-ordination of daily clinical services</p> <ul style="list-style-type: none"> • Ensure that clinical staff are distributed appropriately within clinical services to ensure that patient demand for TB/HIV services can be supported • Establish and maintain referral networks for patients transferring in and out of TB and HIV services <p>Collaboration with TB/HIV NGOs, operating in facility catchment area to ensure appropriate referral to community health workers for adherence support and defaulter tracing</p> <p>Drug supply management of TB drugs and ART</p> <ul style="list-style-type: none"> • Order ART and TB drugs <p>In-service training of staff</p> <ul style="list-style-type: none"> • Schedule regular in-service training for staff • Arrange staff swaps with facilities that offer integrated TB/HIV services <p>TB infection control</p> <ul style="list-style-type: none"> • Convene and chair monthly facility TB infection control meetings <p>Ensure that tasks necessary for TB infection control are performed and that appropriate records are kept</p>

		<ul style="list-style-type: none"> • Report environmental requirements of TB infection control to Public Works and the TB/HIVco-ordinator Order N95 respirators for use in high risk areas Monitoring and evaluation of TB/HIV services • Monthly collation of facility statistics including headcount, services offered and drug utilization statistics • Review electronic TB register statistics pertaining to case detection, cure, treatment completion, defaulter, transfer, and death rates. • Review of HCT, HIV wellness and ART statistics pertaining to patient numbers tested, rate of patients returning to collect CD4 count results, rate of patients enrolling in HIV wellness services, ART initiation, treatment failures which require follow up, defaulters and death rates • Present and discuss statistics with staff, and with district managers <p>Ongoing Quality Improvement</p> <ul style="list-style-type: none"> • Identify specific problems within integrated TB/HIV services, (including TB infection control) through ongoing dialogue and observation of clinic functioning • Intervene to address problems identified above
Registered nurse and enrolled nurse	Clinical care of TB and HIV patients within his/ her scope of practice (in addition to services offered for conditions other than HIV or TB)	<p>Clinical diagnosis and management of patients</p> <ul style="list-style-type: none"> • Diagnose and stage adult and paediatric HIV infection, including adherence to HIV testing protocols and treatment of minor HIV-related complaints

		<ul style="list-style-type: none"> • Identify HIV positive clients for initiation of ART, including pregnant women and children • Diagnose TB, including smear-negative TB with referral for CXR • Initiate and monitor TB treatment and ART (including for prevention of mother to child transmission (PMTCT)) • Refer patients with complications of TB, HIV, TB treatment or ART • Liaise with local TB/HIV NGOs Adherence to TB infection control measures • Use personal protective equipment (N95 respirator) when environmental and administrative controls cannot effectively reduce risk of inhalation of TB bacilli • Facilitate a fast queue for collection of sputum results <p>Clinical record keeping and data collection</p> <ul style="list-style-type: none"> • Complete appropriate registers and clinical records for TB , ART and HIV wellness patients (including those receiving INH or co-trimoxazole prophylaxis) • Complete referral notes when appropriate
Councillor	Counselling	<p>Counselling patients regarding:</p> <ul style="list-style-type: none"> • Pre and post HIV test • Adherence readiness and support for TB and ART • TB symptom screening • Readiness and support for INH prophylaxis • TB infection prevention and control • Prevention of mother to child transmission • Feeding options for new mothers <p>Record keeping and data collection</p>

		<ul style="list-style-type: none"> • Complete appropriate registers and clinical records for counseled patients • Health talks to waiting clients that include TB and HIV-related messages <p>TB infection control</p> <ul style="list-style-type: none"> • Screen clinic patients for cough and educate coughing patients in cough hygiene
Data clerk/ receptionist	Administrative support	<p>Refer patients to appropriate waiting areas or services, including fast queue for collection of sputum results</p> <p>Refer patients to correct service delivery areas</p> <p>Data capture and file clinical records</p>
General Assistant	Facility maintenance and cleaning	<p>TB infection control</p> <ul style="list-style-type: none"> • Daily opening of facility windows regardless of weather conditions • Ensure proper disposal of masks, tissues and biohazardous material from coughing patients or sputum collection
Community care worker (see appendix 11)	Community outreach and liaison	<p>Adherence support for patients initiating ART, TB and IPT</p> <p>Defaulter tracing</p> <ul style="list-style-type: none"> • Follow-up patients who default TB treatment, ART or INH prophylaxis • Follow-up patients failing to collect CD4 counts • Follow up HIV wellness patients not returning for repeat CD4 counts <p>Assistance with clinical monitoring of TB, ART and HIV wellness patients</p> <ul style="list-style-type: none"> • Follow up patients with red flag sputum or blood results identified by nurse TB contact tracing

		<ul style="list-style-type: none"> • screen for TB symptoms • refer children under 5 year's contacts for IPT • refer all contacts with TB symptoms <p>Community mobilization and awareness of TB and HIV</p> <ul style="list-style-type: none"> • Condom distribution • Promote • TB infection control (cover cough, open windows) • HIV prevention messages • HIV testing including PCR for infants • Safe infant feeding
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Table 3(b) Sub-district and District TB/HIV management and support structures

Sub-district and District Health Department staff	Specific responsibilities towards integrating TB and HIV services at Primary Health Care facilities
PHC supervisor	<p>Facilitate and enforce commencement of ART provision at PHC facilities</p> <ul style="list-style-type: none"> • Perform regular clinic supervisory visits to ascertain needs of PHC facilities and progress towards TB/HIV integration • Arrange support visits by experienced (tertiary) ART service providers to train and mentor PHC facility staff in ART service provision • Ensure that referral networks including fax machine and telephonic consultative channels are functioning smoothly • Monitor facility progress towards TB/HIV integration and TB infection control by <ul style="list-style-type: none"> • regular review of facility TB infection control plans • monitoring and evaluating data and indicators for ART and TB • review of drug-ordering patterns of facilities • With sub-district/district HIV and TB co-coordinators, set and review targets (headcount) for integrated TB/HIV service delivery

Public Works district manager	<p>Review environment in all PHC facilities to ensure that appropriate TB infection control requirements are met. This would include:</p> <ul style="list-style-type: none"> • Request baseline assessment and subsequent TB infection control assessment results from facility managers • Ensure that every PHC facility has the following <ul style="list-style-type: none"> • a well ventilated waiting area for TB patients and suspects (preferably outside, shaded waiting area) • windows that are able to open and are free from obstruction • a private well ventilated area for sputum collection (ideally this should be outside) • Consider installation of ultra-violet germicidal irradiation (UVGI) fittings in all high risk areas (including waiting area for TB suspects and patients and TB/HIV treatment room). • Ensure regular maintenance of UVGI fittings is performed
Environmental Health Officer	<ul style="list-style-type: none"> • Liaise with community leaders to arrange community and facility based awareness campaigns regarding TB diagnosis and prevention • Review baseline and ongoing assessments of TB infection control interventions at PHC facilities • Liaise with Public Works to ensure co-operation with facility managers regarding implementation of environmental aspects of TB infection control
Sub-district HAST co-coordinators (previous TB and HIV co-coordinators)	<ul style="list-style-type: none"> • Organize ongoing in-service training for facility managers and for clinical staff in HIV wellness (including IPT), HIV treatment (including ART and nurse ART initiation), TB (including DR-TB) and TB infection control by experienced trainers/clinicians/nurse mentors • Consider identifying a roving doctor/nurse mentor to offer clinical on-site mentoring of staff in ART service provision • Establish referral and support networks for complicated patients by identifying named persons at secondary or tertiary facilities to whom clinical queries can be addressed (telephonically) and to whom complicated patients can be referred. Ensure that contact details for these named persons are available at facilities • Oversee DOH contacts with funded NGOs providing TB/HIV community-based services

	<ul style="list-style-type: none"> • Quantify compliance by performing baseline and regular audits of TB infection control measures at facilities. • Ensure co-operation from Public Works regarding environmental requirements of TB infection control, including regular maintenance of ventilation equipment (including UVGI is applicable) • Provide current guidelines, IEC and HCW education material for integrated TB/HIV services and TB infection control. • Establish drug and consumable supply chains for ART, TB medication, additional HIV- related drugs, HIV testing kits and N95 respirators. • Perform regular drug and consumable stock monitoring in PHC facilities and sub- district pharmacy to prevent stock-outs • Perform usual duties regarding monitoring and evaluation of HIV and TB services including collection of indicators • Report progress of the above to PHC supervisor, district HAST co-coordinator and district health manager
District HAST co-coordinator	<ul style="list-style-type: none"> • Establish facility based HIV wellness (including INH prophylaxis) and HIV treatment annual targets (quantitative and qualitative outcomes) based on HIV NSP targets • Establish annual facility targets for implemented TB infection control. • Carry out facility visits for those facilities reported by the sub-district HAST co- coordinators to be performing poorly with implementation of integrated TB/HIV services and/or TB infection control plans. Facilitate continued implementation. • Determine formal HIV and ART management (including ART initiation), TB and DR- TB management (including infection control) training needs from sub-districts and organize annual training schedule. • Coordinate laboratory services relating to HIV and TB related investigations • Ensure proper referral and follow up of DR-TB patients to ensure continuity of care.

Sub-District/District health manager	<ul style="list-style-type: none"> • Review budgets to ensure that TB infection control and integrated TB/HIV management issues are included and are appropriate • Periodically review implementation status for integrated TB/HIV management to ensure that plans are being affected. • Review targets set by district HAST co-coordinator for PHC facilities regarding integrated TB/HIV management and TB infection control. • Include TB infection control targets, integrated TB/HIV management targets in performance appraisal of PHC supervisors and HAST co-coordinator/s.
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3.2 TB/HIV management at sub-district and district level

In the majority of provinces in S.Africa, sub-district and district TB and HIV prevention, care, treatment and support services are managed by separate designated TB and designated HIV co- coordinators.

It is recommended that:

At sub-district level

The TB and HIV co- coordinators are re-designated as HAST co-coordinators. Each HAST co-coordinator would be responsible for the delivery of integrated TB/ HIV services at half of the PHC facilities in the sub-district’s designated geographical area.

At district level

The TB and HIV co-coordinators posts be replaced with the function of a single HAST co- coordinator who is ultimately responsible for integrated TB/HIV services in the district.

Where this has not taken place, sub-district and district TB/HIV co-coordinators will need to work very closely together, and even ‘unofficially’ share common tasks or allocate TB and HIV tasks regardless of official job descriptions

4. Step-by-step guide to integration of TB/ HIV services

4.1 A guide for facility managers (crucial role players)

Step 1	<ul style="list-style-type: none"> • Quantify TB and ARV service provision needs by the facility's feeder community; • the headcount data for the facility; • the ante-natal prevalence rates for facility/sub-district (if available) • the HIV prevalence rates in the province; • the estimated co-infection rates between HIV and TB; • the NSP targets for HIV service provision; • the projected demand for ART services at the facility; • the number of patients screened for HIV and/or TB by the facility in the previous 12 months; and • the number of patients at the facility treated for HIV and/or TB in the previous 12 months • Prepare simple examples from the specific facility where integrated HIV/TB services will reduce time spent and optimize limited staff capacity.
Step 2	<p>Meet with all facility healthcare staff to discuss and obtain active buy-in to the facility providing integrated TB/HIV services, including:</p> <ul style="list-style-type: none"> • the extent of the challenges as quantified above; • explain the need for TB/HIV integrated services (refer to section A in this guide); • review the models of TB and HIV care in section A-3 in this manual and together with staff establish which model describes the way TB and HIV services are offered at their facility; • acknowledge the human resource limitations of the facility; • explain what TB/HIV integration would mean in practical terms to structural planning for patient flow (section C) and to the roles and responsibilities of each category of HCW in the facility (section D/ appendix 9); and • provide simple practical examples in their specific facility where time would be saved by integrating TB and HIV services (see Figure E1 as an example).
Step 3	<p>Conduct baseline assessment of facility capacity regarding TB/HIV service provision</p> <ul style="list-style-type: none"> • Perform a baseline assessment of TB and HIV services at facility, including: • TB infection control at facility (utilizing TB infection control assessment tool in Annexure 5) • Skills audit and training • Drug ordering and supply channels

	<ul style="list-style-type: none"> • Laboratory services • Monitoring and evaluation tools • Present the findings of the baseline assessment to facility staff • Prepare a written report for review by the sub-district HAST co-coordinator
Step 4	<p>Prepare for drawing up implementation plan for integrated TB/HIV service delivery by:</p> <ul style="list-style-type: none"> • reviewing baseline ART provision capacity assessment; • reviewing sections C and D in this manual pertaining to patient flow, service structure and staff roles and responsibilities towards integrating TB/HIV services; • meet with NGOs to plan community-based TB/HIV support services. Draw up an implementation plan for integrated TB/HIV service delivery; and Present the draft plan to facility staff for discussion and input
Step 5	<p>Finalize the implementation plan for integrated TB/HIV service delivery and present it for review to the district HAST co-coordinator including reaching agreement with facility staff on a date for commencement of integrated TB/HIV services.</p>
Step 6	<p>Set up integrated TB/HIV service meetings at facility</p> <ul style="list-style-type: none"> • establish a date for regular facility-based TB/HIV service implementation meeting • identify a chair person and a secretary • at each meeting, review implementation of service delivery plan and discuss progress and obstacles towards achieving objectives. • continue to meet after commencement of integrated TB/HIV service delivery for purposes of reviewing results from M&E tools to monitor quality of service delivery

4.2 A guide for PHC supervisors

Step 1	<p>Communicate the requirement for integrated TB/HIV services to facility managers and obtain facility managers' buy-in:</p> <ul style="list-style-type: none"> • Meet with facility managers and indicate that integrated TB/HIV services including ART provision will be expected at PHC level during the coming months
Step 2	<p>Assist facility managers to draw up baseline assessments for TB infection control measures and the facility's capacity regarding TB/HIV service provision.</p>
Step 3	<p>Assist facility managers to draw up an implementation plan for integrated TB/HIV service delivery</p> <ul style="list-style-type: none"> • Provide demographic and HIV prevalence statistics for facility managers

Step 4	Establish budget for facilities based on review of integrated TB/HIV implementation plans for each facility. • Report budget and implementation plans to District Health manager
Step 5	Liaise with sub-district/district HAST co-coordinator to ensure that training needs for facilities are met.

4.3 A guide for sub-district HAST co-coordinators

Step 1	Meet with PHC supervisor to establish a common interest in ensuring facility-based integration of TB/HIV services.
Step 2	Meet with facility managers (together with PHC supervisor) to offer support for establishing integrated TB/HIV services Explain the role of HAST co-coordinator in the above process
Step 3	Establish a date for TB infection control training • Give TB infection control training • Establish the facility-based TB infection control committee.
Step 4	Review baseline assessments for TB infection control measures and the facility's capacity regarding TB/HIV service provision including potential structural changes and renovations
Step 5	Review skills audit related to providing an integrated TB/HIV service to establish training needs of staff Set up in-service training opportunities for facility healthcare staff through district HAST co-coordinator
Step 6	Review and provide input into implementation plan for integrated TB/HIV service delivery for each facility including renewable supply (N95 masks, drugs)
Step 7	Monitor implementation of integrated TB/HIV service delivery implementation plan (including TB infection control plan)
Step 8	Facilitate the clinical mentoring of nurses at PHC facilities to initiate ART and obtaining the required authorization from sub-district/district managers to prescribe ART — see appendix 3.

4.4 A guide for district HAST co-coordinators

Step 1	Set up training schedule for required HIV, ART and TB training for PHC facility staff with a focus on in-service mentoring.
Step 2	Meet with NHLS to set up systems to ensure functioning of laboratory services for monitoring of TB, HIV and ART by PHC facilities Communicate these systems/arrangements to PHC facility managers

Step 3	Meet with tertiary providers of ART care to set up a clinical support system to PHCs and referral networks of ART patients in and out of PHCs Communicate details of referral networks with facility managers
Step 4	Monitor implementation of integrated TB/HIV service delivery within sub-district PHC facilities
Step 5	Monitor and assist sub-district HAST managers (where necessary) obtaining the necessary authorization for nurses to initiate ART from sub-district/district manager

4.5 A guide for Sub-District/District Health managers

Step 1	Communicate the requirement for integrated TB/HIV services to sub-district/district HAST co-coordinators <ul style="list-style-type: none"> • Indicate that integrated TB/HIV services including ART provision will be expected at PHC level during the coming months • Review the evidence for integrated TB/HIV services • Outline the process of establishing facilities as integrated TB/HIV service delivery points
Step 2	Financial and legal requirements for integration <ul style="list-style-type: none"> • Ensure that District is aware of impending commencement of PHC-based ART service delivery and that forthcoming budgets will need to include laboratory monitoring and drug supply costs. • Secure funding for IC alterations and renewable supply. • Where possible, obtain funding for additional clinical staff for PHC facilities. • Issue letters to nurses at PHC facilities (through PHC supervisors/ sub-district HAST co-coordinators) authorizing registered nurses to prescribe ART according to established clinical guidelines (see appendix 3 above).
Step 3	Human resources management <ul style="list-style-type: none"> • Include progress towards TB/HIV integration at PHC facilities in performance evaluation of appropriate staff • Solicit training and in-service support agreements with local universities, research organizations, funding bodies or technical experts.
Step 4	Request and review reports of facility progress towards integrated TB/HIV services
Step 5	Establish targets for integrated TB/HIV services at PHC facilities <ul style="list-style-type: none"> • Review regional demographics and HIV sero prevalence statistics to ascertain if anticipated headcounts by facilities are reasonable. • Create incentives or rewards for facilities that meet targets.
Step 6	Perform site visits to assess progress towards integrated TB/HIV services.

Key Messages

PHC facility managers are critical to achieving integrated TB/HIV service delivery at PHC facilities.

Implementation of integrated TB/HIV services requires continual monitoring through regular PHC facility meetings and facilitation by sub-district and district HAST staff.

5. Logistical arrangement of integrated TB/HIV services

This section proposes the re-arrangement of logistical aspects of service delivery within facilities to ensure that:

Goal 1: Patients receive the services they need in one clinical consultation

Goal 2: TB infection control measures are applied to minimize the risks of nosocomial transmission of infection

To achieve these 2 goals, structural changes as well as changes to the patient flow in the facility are required.

5.1: Structural changes

Before commencing with structural changes, assess airflow through the facility using incense sticks.

This simple test allows one to visualize where air flow is rapid and directional (rapid dispersion of incense in a specific direction) or still (a single, rising smoke plume from the incense stick). Airflow direction and rate can be assessed under operational conditions with windows and doors either closed or open.

Once airflow patterns are known, alterations to physical structure can be done to maximize environmental components of TB infection control.

Appendix 2 shows how a structure (building) can be reorganized to facilitate TB infection control. These plans demonstrate how internal corridors can be avoided, and also how open waiting areas can be arranged so that patients have direct access to the consultation room, pharmacy or any other service.

Outside waiting areas are particularly advantageous in minimizing risk of TB transmission to patient. Outside waiting areas can be adapted depending on the climate. In very cold and windy climates, canvas can close off one or more sides and fixed (gas) heaters can be placed. In hot, sunny climates, shade is essential.

Where it is not possible to set up an outdoor waiting areas, indoor waiting areas can be used, but they should be well ventilated. This can be achieved by keeping doors and windows open. Where adequate cross ventilation cannot be achieved and there are 'dead spaces' where air does not move, ventilation can be facilitated by addition of freestanding fans, extractor fans fitted into the walls and whirlybirds fitted into the roof.

Appendix IV is an algorithm to assist PHC facility managers to adapt their facility to ensure that TB infection control requirements are met

A patient-centered approach includes patient appointment management to minimize the number of appointments and time spent in facility

5.2 Patient flow in the facility

When integrating TB and HIV services, patient flow and service arrangement within the facility needs to be structured to accommodate for infection control. Figure 5(a) is an example of a floor plan where service areas and consultation rooms allow for TB infection control.

5.2.1 Clinic reception and administrative areas

- 1 Pointing clients to appropriate clinical service delivery
- 2 Screening for cough, with education on cough hygiene
- 3 Providing coughing patients with tissues or masks to cover their cough
- 4 Administration of client records, queue management
- 5 Data collection and entry using appropriate data collection tools

5.2.2 Clinic waiting area

- 1 Health talks (covering topics such as PMTCT, TB and HIV treatment literacy, TB infection control and prevention, HIV testing and diagnosis)
- 2 Separation of TB suspects and TB patients by screening for cough
- 3 Weighing patients, general health screen (vital signs)

5.2.3 Clinical consultation rooms for preventative services (e.g. ante-natal clinic, PMTCT, family planning, well baby clinic)

- 1 Non-HIV-related services for adult and child acute and chronic illnesses, family planning
- 2 Infant PCR testing
- 3 HIV diagnosis and staging (HIV testing, CD4 count, management of minor HIV-related complaints, including follow-up to ensure collection of CD4 counts and referral to HIV room for ART)
- 4 HIV wellness (TB screening, IPT, co-trimoxazole dispensing).
- 5 Record keeping of HIV testing and HIV wellness statistics using appropriate data collection tools

5.2.4 Counseling room

- 1 HIV rapid test and confirmation test according to new HCT guideline
- 2 HIV post test counseling
- 3 Routine TB symptom screening and counseling for IPT.
- 4 Evaluation of TB/HIV patient readiness for ART
- 5 Adherence preparedness and support for patients receiving TB treatment and/or ART
- 6 Record keeping of HIV testing statistics using appropriate data collection tools
- 7 Infant feeding counseling

5.2.5 Curative clinical consultation room,

- 1 Diagnosis and management of TB patients (including TB screening, TB diagnosis through sputum microscopy and culture when indicated, TB drug dispensing, TB record keeping using National TB Control Programme stationery)
- 2 HIV diagnosis and staging (HIV testing (for TB patients), CD4 count, management of minor HIV- related complaints) for TB patients with unknown HIV status
- 3 Management of patients on ART (initiation of ART, chronic administration, management of side-effects, regular screening for TB, referral of complicated cases)
- 4 Record keeping of HIV testing statistics using appropriate data collection tools
- 5 Record keeping of ART provision statistics using appropriate data

collection tools

5.2.6 Sputum collection area (a specific area outside of PHC facility)

- 1 Collection of sputum

5.2.7 Pharmacy, Staff Restroom

- 1 Ideally, these areas are out of bounds to patients. Nevertheless ventilation requirements should also be adhered to in these areas.

Depending on number of clinical rooms and trained clinical staff available, a specific room could be dedicated to TB/ART services to help service organization.

Key Messages

Screening for cough happens as patients enter the facility, in the reception area

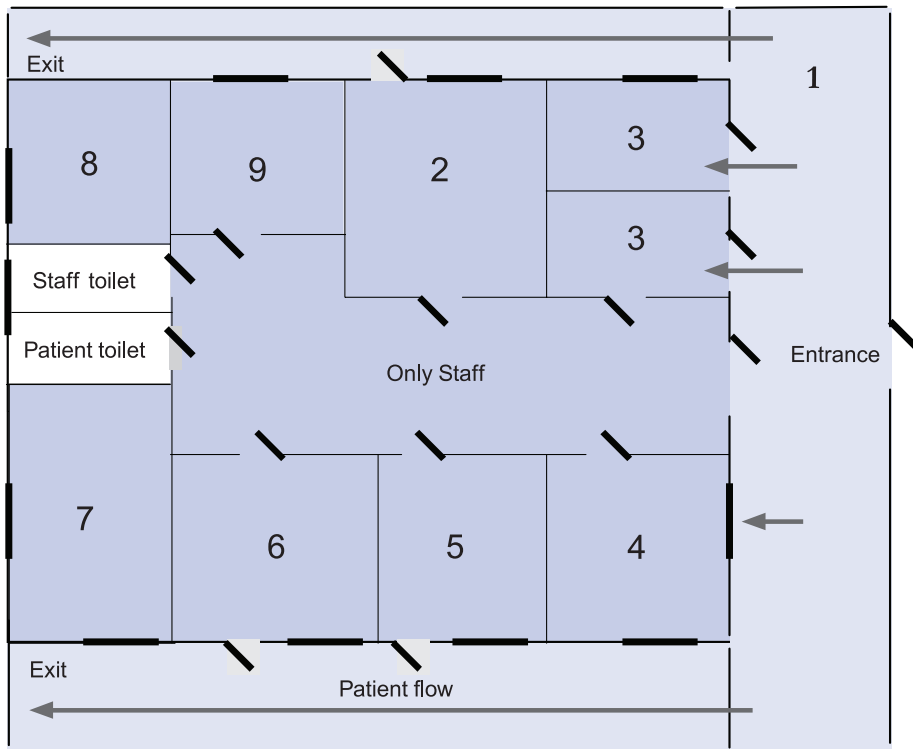
HIV diagnosis, staging and wellness services are offered in every clinic service delivery area

ART provision is offered in a dedicated TB/ARV service area, as much as this is possible, with the exception of PMTCT included in ante-natal services.

TB diagnosis and treatment are given in the TB/ARV service area. For TB patients, HIV diagnosis and staging is offered in the TB/ ARV service area

TB infection control practices are observed in all clinic areas as well

Figure 5(a): Services offered in each area of a PHC clinic which has integrated TB/ HIV services



Each facility manager will have to adapt floor plan according to available resources

Clinic Environment

- Good ventilation
- Air mixing through use of fans
- UVGI in high risk areas (TB services and TB waiting areas)

1. Waiting Area (external if possible)

- Cough triage
- Separate both TB suspects and early TB treatment
- Safe disposal for tissues / mask
- Daily health promotion & treatment literacy
- Posters demonstrating cough hygiene

- Maximum natural ventilation

2. TB/ART service area:

- TB diagnosis and management
- HIV diagnosis and staging for TB patients only
- Management of ART for TB and non- TB patients
- Monitoring and evaluation of TB and ART services through completion of registers
- This divide is OPTIONAL

3. TB & HIV counselling area:

- HIV pre- and post-test counseling
- TB symptom screening
- TB and ART adherence preparedness and support
- Follow-up to ensure collection of CD4 counts
- Completion of pre-ART registers

4. Reception Area:

- TB/HIV folder merging
- Referral of clients to appropriate services
- Administration (filing and record -keeping)
- Daily appointments and defaulters' lists

5. Acute and Chronic care:

- Services related to acute and chronic conditions
- HIV diagnosis and staging
- HIV wellness and pre-ART care (including IPT and CTX prophylaxis)
- Symptom screening for TB

6. Paediatric care:

- Immunizations and well baby clinic
- HIV diagnosis and staging
- HIV wellness for pre-ART care (including IPT and CTX prophylaxis)
- Symptom screening for TB

7. Ante-natal and family planning services:

- Routine ante-natal and family planning services
- HIV diagnosis and staging for pregnant woman and FP clients.
- Integrated prevention of mother-to-child transmission (including ART provision)

- HIV wellness for pre-ART care (including IPT and CTX prophylaxis) for pregnant woman and FP clients
- Symptom screening for TB

8. Staff restroom:

- Training of staff including TB/HIV integration, TB diagnosis, TB infection control, ARV management
- Screening of staff for TB symptoms

9. Pharmacy & storage:

- Drug dispensing
- Clients advice
- External window

Sputum collection area:

- Good ventilation
- External from clinic building

6. Integrated TB/HIV monitoring and evaluation

Monitoring and evaluation of TB and HIV (including ART) programmes follows the same essential principles namely:

- structured clinical records (patient held cards and facility records)
- routine data collection using paper or electronic registers
- compiling and reporting data on groups (cohorts) of patients — over time and across facilities
- aggregation and dissemination to higher levels Information should be increasingly aggregated as

it flows from PHC facilities to more central levels. At PHC facility level, individual patient management requires clinical notes and a means of managing appointments, staff and resources. At each higher level within the health system, fewer data elements should be required with a standard minimum set of indicators at policy planning level.

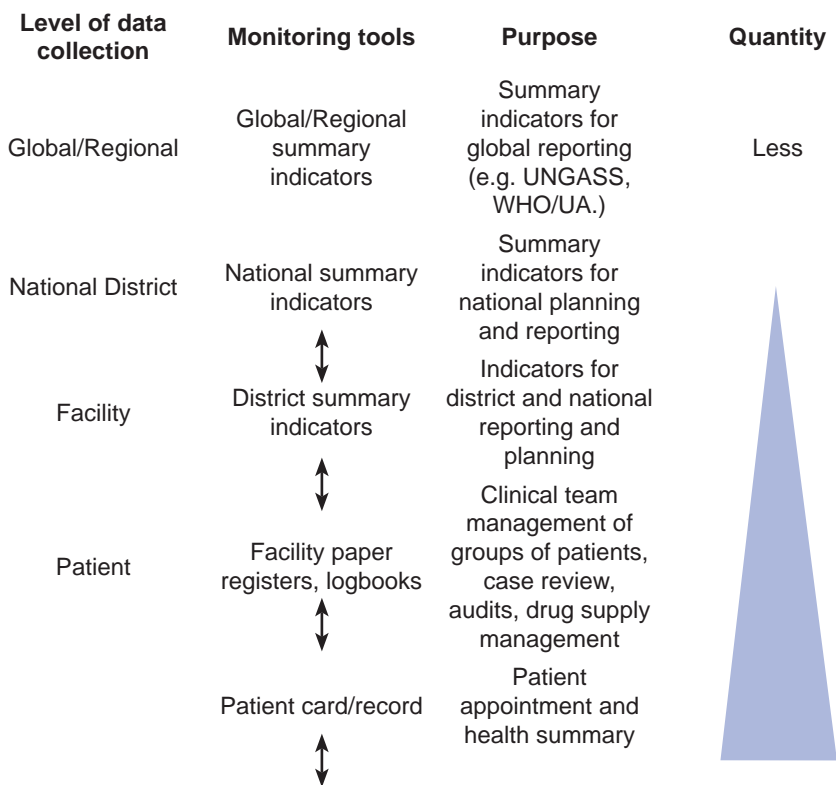
6.1. Cards, forms and registers

At PHC facility level, patient management requires structured clinical notes and appointment dates in patient held records including TB card, HIV card, Road to health card and Antenatal card. Similar and additional information is contained in facility held records. Information from these is then entered into facility paper registers.

From the facility paper registers, defined data elements are aggregated and used at PHC facility level to inform and improve clinical care and sent on to the sub-district. The sub-district is responsible for: collating all data (in electronic database) and forwarding to the district; supervision of data collection in all facilities, training of staff and feeding back information in quarterly supervision.

TB: Sheets (carbon copies) are removed from the registers quarterly and entered into ETR.net (electronic TB register) at sub-district level.

HIV/ART: Facilities send electronically or fax data centrally. Monthly enrolment and quarterly outcome data are collated and sent.



6.1.1 Patient held records

Patient held records contain the minimum required information in order for a patient to be seen at another facility if need arises or to enable the patient to be attended to in case of loss of a facility record.

6.1.1.1 TB patient held record

The TB card records all the information relative to the TB episode. It contains the same information (minus the clinical notes) as the facility record. The card is used to track adherence by ticking each day of treatment given.

6.1.1.2 HIV patient held card

While not in use everywhere in South Africa, a suggested example of an HIV/ART patient held card can be found in appendix 10 and is referred to herein below.

The HIV/ART patient card contains demographic information and treatment information.

The card has space for updates of CD4 counts and viral loads and any treatment changes or opportunistic infections. The back of the card is designed for writing appointments and ticking who the patient must see at the next appointment - doctor, nurse, blood, medicines pick up or sputa collection. This card is designed to last for several years.

The two cards contain some repetition (mostly demographic elements) but as many facilities now use patient stickers this does not require much duplicate writing. To ensure the provision of integrated TB/HIV services, the TB and HIV patient held cards should be stapled together during active TB episodes, allowing health personnel to immediately identify co-infected patients. Once the TB episode is resolved, the TB card is unstapled and placed in the TB facility record.

6.1.2 Facility held records

6.1.2.1 Facility held TB record

The facility held record for TB is a blue cardboard A4 “Patient clinic/hospital card” which has information to be filled on the 4 sides. The front page is filled at treatment start and contains demographic; patient category and type of TB; ICD10 Code and notification information. The inside tracks sputa results, regimen and dosages and boxes allowing ticking for daily DOTS visits.

The 3rd and 4th pages contain information spaces to allow clinical notes to be written, HIV status and CD4 if applicable, other chronic conditions and the final treatment outcomes.

6.1.2.2 Facility held HIV record

The HIV facility held records, while not used everywhere, consist of an A4 cardboard folder with information to be filled on 4 sides, and a visit summary sheet with 5 columns per sheet, the “visit summary”.

The HIV background information folder is also an A4 cardboard folder which contains 7 sections covering: demographic information; information on HIV and ART, clinical assessment at first clinic visit and evaluation or starting ART and a counseling and social section.

The visit summary has 5 columns, each column representing a visit, and is designed to aid nurses through the steps of a consultation, with a section on history and examination with prompts, a specific section TB with prompts for questions to be asked to identify suspects and for those on treatment, a calendar with months on treatment and need for either smear or cultures to be taken. After this “investigation” section there is an assessment section for other opportunistic infections or adverse events and a plan and treatment section for drugs and prophylaxis medications.

The “visit summary” sheet is already integrated and can be used for patients in HIV, ART and TB care or for co-infected patients.

For co-infected patients both the TB and HIV facility records must be used and only the portion of the TB record which is not contained in HIV record should be completed. These records should always be filed together except when patient is on daily DOTS (see section 2 on co-infected patients below). Each HCW that sees a patient should have both records in front of them during the consultation.

6.2. Using the tools in fully integrated TB/HIV services

In PHC facilities where services are not integrated but merely collaborating, all tools are required to be completed in full as the tools have already been updated for service “collaboration”. The TB card and register include HIV testing, CPT, CD4s and referral to ART sites; and similarly the HIV registers includes information on TB screening and treatment.

The TB and HIV/ART tools share a fair amount of common information, which obliges staff to fill in the same data elements several times. This is frustrating for busy clinical staff and in the end has a negative impact on data quality, as essential elements are not filled in either of the cards. A fully integrated TB/HIV service at a PHC facility will see 3 main categories of patients:

- a majority of co-infected patients (+/- 70 % of all patients);
- patients infected with TB but HIV negative; and
- patients infected with HIV but with no concurrent TB.

6.2.1 Patients infected with TB only

Suspects arriving at the facility for sputum collection should be given a suspect sheet and if HIV status not known, they should be tested for HIV. These patients are to be entered in the suspect register. If infected with HIV, a facility record is opened on the same day and an appointment made for when the patient returns for sputa results. Patients neither HIV nor TB infected are discharged without a facility held TB or HIV record being opened, after closing the suspect episode in the register.

For patients infected with TB but not HIV, the blue TB facility record is to be opened and standard procedures followed. The record is to be kept in the facility file storing room and only drawn for clinical visits (at minimum: treatment initiation, 2/3 month change and end of treatment and more often if there are problems). The TB records are to be kept in the TB/ HIV room for as long as patients are coming for DOT. After any clinical visit, the TB record is given to the person responsible for updating the register before being re-filed. If the person is given a monthly supply of TB treatment, the TB record is placed in the main storage room of the facility.

6.2.2 Patients infected with HIV only

New patients arriving at the PHC facility should have an HIV facility record opened (including the visit summary sheet) and a clinical appointment made.

Patients with CD4 counts that do not warrant ART should be entered

in the pre-ART register after their first appointment. Patients who start ART or are transferred in on ART should be entered in to the ART register immediately.

6.2.3 Patients co-infected with HIV and TB

Co-infected patients should use the HIV facility record and ONLY relevant portions of the TB facility record necessary for tracking the present TB episode (appendix 10). Items which are filled in the HIV facility record do not need to be duplicated in the TB facility record.

The TB card is kept in the DOT room for the time the person is on DOT, and then transferred into the main TB facility record if TB treatment is no longer given daily or weekly at the facility. During clinical visits and at the end of treatment, the TB card is re-inserted in the facility record.

6.3 The functioning of the reception at PHC facilities providing an integrated TB/HIV service

All facility records are to be kept in the main reception. In the morning, patients drop their cards at the reception (co-infected patients to have cards stapled together). Facility records (combined TB and HIV facility records for co-infected patients) are drawn by clerks, checked for completeness of results and stationery and placed in piles according to category of healthcare staff noted on the card (nurse, doctor, counselor, medications, bloods or sputum collection). The piles of facility records are then collected by the relevant HCWs who summon patients from the waiting area one by one. At the end of the consultation, the patient drops back the facility record at the reception where data clerks go through the facility records and enter information into registers.

Facility records are only re-filed after the data clerks have updated and signed off the visit column for that day.

For co-infected patients, the facility record should only be drawn for clinical visits NOT DOT visits. The clerks and data capturers are responsible for collecting and collating information for both TB and HIV.

6.3.1 Integration using electronic medical record systems

PHC facilities using electronic monitoring tools function in much the same way with one data clerk entering information from both the TB and HIV facility held records into the integrated electronic register or

electronic medical record system. Either stand alone e-registers or provincial electronic medical records systems for use in fully integrated services need to share the same demographic platform across both episode types.

Appendix I

Recommendations for nurses to initiate ART at PHC facilities

Nurses are legally eligible to prescribe ART

ART prescription by nurses is governed by section 56(6) of the 2005 Nursing Act (Act 33 of 2005) read together with the regulations set out in government gazette R2418. This legislation allows nurses to prescribe ART upon receiving provincially delegated authorization from sub-district/district managers. Application for authorization to prescribe ART can be made by or on behalf of a nurse who:

- is registered as a professional nurse or midwife³;
- has gained some experience in HIV/ART clinical management; and
- has a letter from a clinical mentor that confirms that the mentor has assessed the nurse and the nurse is competent to initiate ART.

A clinical mentor is:

- any doctor with at least 3 months experience in HIV/ART clinical management;
- any registered nurse with a minimum of 6 months experience in HIV/ART clinical management and has himself/herself received authorization to initiate ART;
- any registered nurse with experience in HIV/ART clinical management, has successfully completed a post graduate course in HIV clinical mentorship/ HIV clinical management and has himself/herself received authorization to initiate ART.

Assessment of a nurse's competency to initiate ART

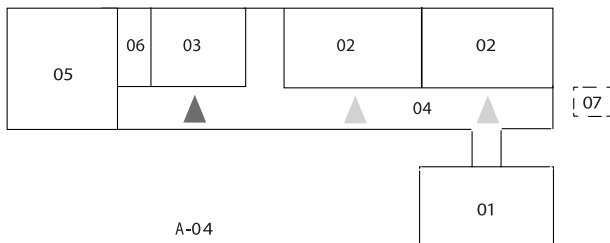
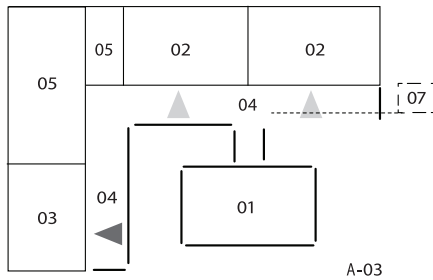
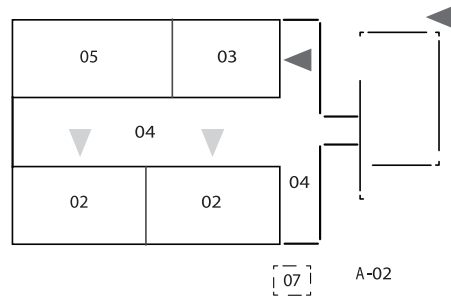
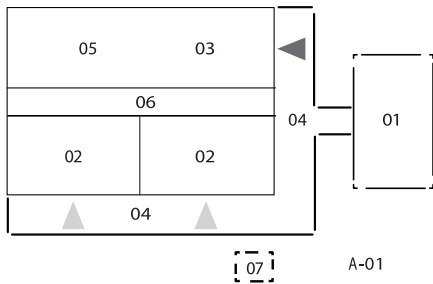
A clinical mentor is required to assess a nurse's competency to initiate ART after the nurse has initiated adult and paediatric patients on ART under his/her direct supervision. Where the PHC facility also initiates pregnant women on ART, some of the aforementioned adult patients should be pregnant women.

Where the clinical mentor is satisfied with the nurse's competency after such assessment, he/she will immediately confirm in writing the nurse's competency to initiate ART.

Where the clinical mentor is not satisfied with the nurse's competency after such assessment, he/she will continue to mentor the nurse until he/she is satisfied with the nurse's competency to initiate ART.

Appendix II

Possible PHC clinic floor plans



Legend

- 01 Detached Waiting area connected to main building with covered walkway to have enough natural ventilation, preferably semi-outdoor, coughing & TB sputum patients to be admitted first
 - 02 Consultation & Counseling Zone to be divided (optional) into TB/HIV section and general PHC section, room positions to be selected based on required needs
 - 03 Pharmacy and Store
 - 04 Open/semi-outdoor corridor to have enough ventilation and space for patient flow into consultation rooms
 - 05 Staff zone
 - 06 Internal corridor, staff only
 - 07 Sputum collection booth, outside, well ventilated, close to TB consultation room Laboratory function to be added when necessary, accessible for patients
- ▶
- ▶ Dispensary patient's access

Appendix III

TB Infection Control Assessment Tool

Facility name:

Date of assessment: Completed by:

Instructions for completion:

- Request a person outside of the facility, but with experience in health care, to do the assessment (e.g. the TB co-coordinator, a public works official or a pharmacist)
- Circle the response most applicable to your institution. Total the scores in the place provided
- Retrieve last month's assessment and complete the column 'Last month's score' (LMS)
- Note improvements and declines in this month's assessment compared to last month's assessment.

1. Supporting structures and activities to ensure implementation of TB infection control interventions.

	0	1	2
1.1. Does your facility have an Infection Prevention and Control Committee?	No		Yes
1.2. Did this committee meet within the last 4 weeks?	No		Yes
1.3. Is there a TB Infection Control Plan for the facility?	No		Yes
1.4. Is the TB infection control plan displayed in a public place?	No		Yes
1.5. Were TB infection control measures assessed within the last 5 weeks?	No		Yes
1.6. Were staff trained in TB infection control this month?	No	Some staff	Yes
1.7. Were all newly diagnosed HIV+ clients screened for TB symptoms (cough, loss of weight, night sweat)?	Some (no proof) No		Yes
1.8. Were health talks given to waiting clients who included a message about TB symptoms and diagnosis?	No		Yes

1.9. Were any maintenance activities undertaken during the last 4 weeks on structures which improve TB infection control (e.g. air conditioning, fans, and UVGI fittings?)	No		Yes
Total score: (maximum =18)			

2. Administrative controls: Strategies to reduce generation of infectious aerosols

	0	1	2
2.1. Are patients screened for cough as they enter your facility?	No	Occasionally	Yes
2.2. Are patients educated in cough hygiene as they enter your facility?	No	Occasionally	Yes
2.3. If patients cough, are they provided with masks/ tissues to reduce?	No	Occasionally	Yes
2.4. Are TB suspects/patients separated from those who are not?	No	Occasionally	Yes
2.6. Were staff reminded of the need for 'early TB diagnoses during this month?	No	Occasionally	Yes
2.8. Is there a 'fast-queue' for collection of sputum smear results?	No	Occasionally	Yes
2.9. What is the laboratory turn-around time for sputum AFB/ microscopy for the last sputum AFB result received?	No	Occasionally	Yes
Total score: (maximum =14)			

3. Environmental controls: Strategies to remove infectious aerosols after generation:

	0	1	2
3.1. Are the windows in your facility able to open?	No	Some	Yes
3.2. Are the windows in your facility kept open during working hours?	No	Occasionally	Yes
3.3. Are fans used to increase circulation of air in your area of work?	No	Occasionally	Yes
Total score: (maximum = 6)			

4. Personal risk reduction strategies to reduce inhalation of infectious aerosols*:

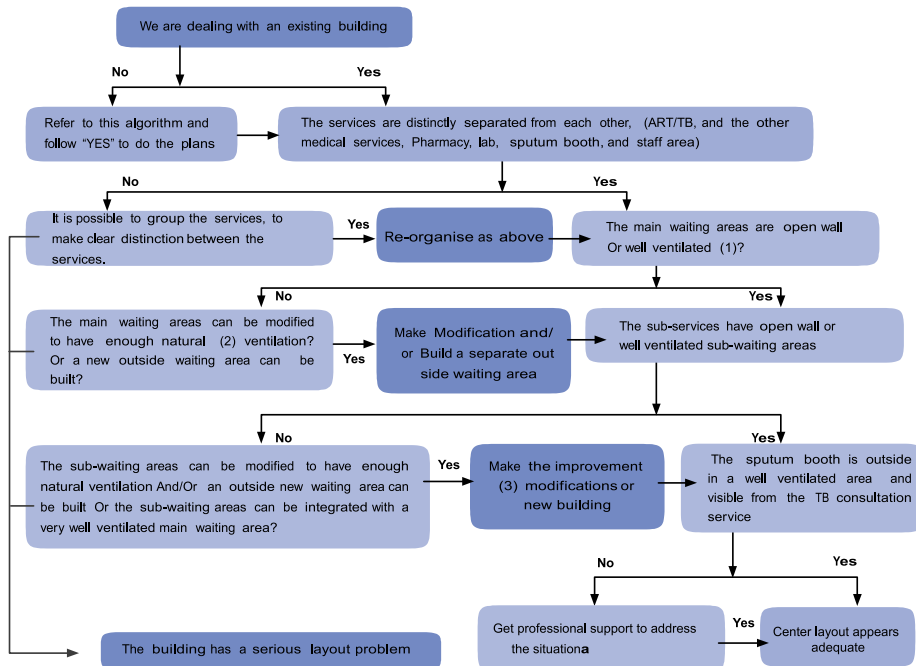
	0	1	2
4.1. Were staff screened for TB infection symptoms this month?	No	Some staff	Yes
4.2. Were staff encouraged to know their HIV status this month?	No	Some staff	Yes
4.3. Were staff reminded of the risks of TB for people who are living with HIV this month?	No	Some staff	Yes
4.4. Were staff trained to recognize and diagnose TB this month?	No	Some staff	Yes
4.5. Are N95 respirators available this month?	No	Some staff	Yes
4.6. Were N95 respirators used by staff in high risk services this month (e.g. TB, coughing queue)?	No	Some staff	Yes
4.7. Do you supply surgical masks to high risk or known TB patients	No	Some staff	Yes
Total score: (maximum =14)			

Appendix IV

Algorithm To Address Challenges Related To Airborne Infections

(4) How to measure ACh: see SA TB Infection Control guideline.

(1) The main waiting areas must be well ventilated with at least 12



Air Change per hour (ACh) by all means. Some times modifying a building is more expensive than building a new one, so it is always better to consult professionals in this matter. Note that split walls or wall mounted air conditioners generally do not provide any fresh air.

(2) At least the ventilation of the sub-waiting areas where TB patients have access (ex: pharmacy) must be improved by all means. Whenever possible priority must always be given to natural ventilation as it does not require maintenance.

(3) Improvements of natural ventilation can be achieved in different ways. It varies from changing window size and type, to taking walls down. From extending a structure to building a brand new waiting

area. From installing turbine fans to installing a mechanical ventilation system. Be aware that mechanical ventilation systems are expensive, difficult to install, difficult to maintain and are costly to operate and should therefore be used as a last resource solution in health centres with limited resources. Cheaper mechanical systems are available.

Appendix V Guidelines

<http://www.bizwell.co.za/documents/governmentTools/TBProphylaxisGuidelines2010.pdf>
SA IPT guidelines

<http://www.doh.gov.za/docs/factsheets/guidelines/pmtct.pdf>
pmtct guidelines

<http://www.doh.gov.za/docs/factsheets/guidelines/paediatric.pdf>
paediatric guidelines

http://www.doh.gov.za/docs/factsheets/guidelines/adult_art.pdf
adult guidelines

<http://www.doh.gov.za/docs/factsheets/guidelines/art.pdf>
ARV guidelines-short

http://www.msf.org.za/Docs/Khayelitsha/management_of_hiv_conditions_ARVs_adults&children_2009.pdf
management of HIV related conditions and ART therapy in adults and children. Guide for PHC in South Africa, MSF 2010

<http://familymedicine.ukzn.ac.za/Uploads/1d49d8e8>
TB guidelines

<http://www.genderjustice.org.za/resources/project-materials/policy-and-government/national-hiv-counselling-and-testing-hct-policy-guidelines/download>
national HIV counseling and testing guidelines 2010

http://www.doh.gov.za/docs/guidelines_clinical.pdf
clinic mentorship for integrated services 2011

Glossary/Definitions

ART is an acronym for anti-retroviral treatment referring to the chronic treatment for HIV/AIDS.

CCW refers to community care worker.

DOT is an adherence-enhancing strategy in which a health-care worker or other trained person watches a patient swallow each dose of medication and is accountable to the public health system.

DR-TB is an acronym for drug-resistant TB including both multi-drug resistant TB (MDR-TB) and extensively-drug resistant TB (XDR-TB). MDR-TB is defined as resistance to at least rifampin (R) and isoniazid. XDR-TB refers to additional resistance to any fluoroquinolone, and at least one of the three injectable anti-tuberculosis (TB) drugs (capreomycin, kanamycin and amikacin).

Fast queue for collection of sputum results refers to ensuring that patient flow ensures quick attendance to TB suspect patients for their sputum results.

IPT refers to isoniazid (INH) prophylaxis which reduces the incidence of TB in HIV positive populations at high risk of developing active TB disease.

HIV wellness refers to comprehensive care, treatment and support for a patient infected with HIV who does not require ART yet. HIV wellness includes prophylactic cotrimoxazole and INH treatment where applicable.

NIMART refers to nurse initiated ART.

NTCP refers to the South African National Tuberculosis Control Programme

NSP refers to the HIV and AIDS and STI Strategic Plan for South Africa, 2007-2011

PMTCT is an acronym for prevention of mother to child transmission of HIV

PHC refers to Primary Health Care clinics

Smear-negative TB refers to where the sputum microscopy shows none of the specimens to be AFB+. Smear-negative TB is common in patients infected with HIV.

Task-sharing refers to focus on defining roles and responsibilities of staff previously attending to only TB or HIV service components (with potential collaboration) to integrated TB/HIV service. This is different to task shifting which refers to task transfers for patient care.

TB/HIV collaboration is defined as the level of relationship and coordination required between the two programmes in order to ensure the provision of a comprehensive service to co-infected patients in a most effective and efficient manner. Collaboration is critical at national, provincial and district levels and refers to the cooperation of the TB and HIV programmes structures to foster synergies between the programmes. One representation of effective collaboration is the existence of formal TB/ HIV committees or HIV/AIDS STI and TB (HAST) committees that oversee planning, implementation and M&E of TB/HIV activities.

TB/HIV integration is where both TB and HIV prevention and care are provided simultaneously to the co-infected patient. It is a holistic patient-centred care model. Integration refers to the provision of comprehensive care to the co-infected patient. The provision of a “supermarket approach” or “one-stop shop” is an example of full integration of services where the co-infected patients are being taken care of at once.

TB Infection Control (TBIC) refers to infection control methods that can be put in place to reduce nosocomial transmission of TB

UVGI is an acronym for ultra-violet germicidal irradiation, which is a method of air cleaning and can be used as a form of TB infection control. It is not however suitable as a substitute for other methods of air cleaning and cannot be used as the only method of TB infection.

References

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- 2 Global Tuberculosis control: A short update to the 2009 report. WHO/HTM/TB/2009.426.
- 3 Wood R, Lian H, Wu H et al. Changing prevalence of tuberculosis infection with increasing age in high-burden townships in South Africa. *Int J Tuberc Lung Dis* 14(4):406-412.
- 4 Tuberculosis Strategic Plan for South Africa 2007-2011, Pg.5
- 5 Statistics South Africa. Mortality and causes of death in South Africa, 2007: Findings from death notification. StatsSA. P0309.3 2 November 2009
- 6 Gandhi NR, Moll A, Sturm AW, et al. (2006). "Extensively drug-resistant tuberculosis as a cause of death in patients co-infected with tuberculosis and HIV in a rural area of South Africa". *The Lancet* 368: 1575—80
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