

**INTEGRATION OF THE TUBERCULOSIS AND HUMAN  
IMMUNODEFICIENCY VIRUS CONTROL MEASURES IN  
SOUTH AFRICA DURING  
JANUARY TO DECEMBER 2000**

**BY**

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## **DECLARATION**

**I declare that this dissertation  
is my own work and has not previously been  
submitted by me for a degree  
at any University.**

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**Date: July 2004**

**Hyera, F.L.M:**

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## 1. ABSTRACT

Integration of the tuberculosis and human immunodeficiency virus control measures in South Africa during January to December 2000.

### 1.1 Study Setting

The Republic of South Africa has nine provinces each with its own administrative structure. Each province has its own government and departments, which resemble the national structure. The Provincial Department of Health has several directorates of which the directorates dealing with HIV/AIDS and Tuberculosis were the target sample population in the study. All co-ordinators (TB and HIV/AIDS) were included in the study for better understanding the integration, as they are the managers and are involved in policy formulation and implementation of these programmes. There were no exclusions.

### 1.2 Background of the Study:

TB in high HIV prevalence populations is a leading cause of morbidity and mortality. HIV is driving the TB epidemic in many countries (especially in sub-Saharan Africa). TB and HIV/AIDS programmes therefore share mutual concerns since prevention of HIV should be a priority for TB control. TB care and prevention should be priority concerns in HIV/AIDS programmes. Previously TB and HIV/AIDS programmes have largely pursued separate courses. Thus, a new strategy for TB/HIV needs to exploit synergies between TB and HIV programmes and their support to the general health services.

In order to control TB/HIV, it is necessary to intensify TB case finding, decrease diagnostic and treatment delays and implement additional measures which target the preceding steps in the sequence, such as prevent HIV transmission, TB preventive treatment and Highly Active Anti-Retroviral Treatment (HAART).

The support and care for persons living with HIV/AIDS (PLWHA) and TB have been marginalized in most health budgets. A holistic approach, integrating care, information and services within the mainstream of general health services and Health (Service) Management Information Systems is vital to be employed in joint HIV/AIDS and TB technical assistance missions.

The need for TB/HIV collaboration in South Africa became more obvious following the national reviews of TB and HIV/AIDS/STI Programmes in 1996 and 1997. Recommendations were, *inter alia*, that TB/HIV collaboration be improved in planning, advocacy, health education, training, service provision, community mobilisation and operational research. During 1999, South Africa started TB/HIV pilot districts in four provinces, implementing collaboration with a goal "to expand and improve TB/HIV services through collaboration in training, service provision and establishment of TB/HIV training districts". This study describes the integration of TB and HIV/AIDS/STI Programmes at provincial and national levels in the Republic of South Africa, two years after the two national reviews and introduction of the TB/HIV pilot districts.

### **1.3 Study Objectives**

- 1.3.1** To conduct an assessment of integration of the TB and HIV control measures at provincial and national levels in the Republic of South Africa, January to December 2000.
- 1.3.2** To identify the strengths and weaknesses on integration of the TB and HIV control measures and recommend ways to promote integration.

### **1.4 Study Design and Methodology**

This is a qualitative study targeting all Provincial TB and HIV/AIDS co-ordinators in the Republic of South Africa for description, discussion and relevant information collection on TB/HIV integration problems, strengths, weaknesses and advice on solving these problems (see Appendix I).

The measurement of areas of TB/HIV programs integration includes: Management, planning, advocacy, health education, policy formulation, training, service provision, social support, community involvement, surveillance, and monitoring and evaluation with operational research.

### **1.5 Methodology**

A self-administered questionnaire (Appendix I) was first discussed with, and later distributed to, all stakeholders at a Provincial TB and HIV/AIDS co-ordinators' meeting at Boksburg - Johannesburg on the 5<sup>th</sup> and 6<sup>th</sup> October 2000. A separate meeting was held with each Provincial Co-ordinator of TB and HIV/AIDS/STI to elaborate on the questionnaire and to answer any questions, as well as to clarify any issues arising from the questionnaires and objectives of the study as a whole. The researcher's telephone numbers (office, home and cell) were provided to all participants in case of unclear questions / statements in the study questionnaire for clarification.

### **1.6 Results**

The response rate to the questionnaires was 89% (8 provinces). Nationally the TB & HIV/AIDS programs run separately and vertically, each with its own administrative structure and budget, but both report to a Chief Director for HIV/AIDS and Tuberculosis in all 8 provinces that responded. Limited formal integration is expressed at provincial level, but there is collaboration in several activities. Four (4) provinces had TB/HIV pilot districts (KwaZulu-Natal, Western Cape, Limpopo and Eastern Cape) in 1999.

### **1.7 Challenges**

Although there are several good examples of collaboration and integration, this occurs informally for the most part. Each program is managed separately, and implemented vertically. There is lack of realization that TB is the leading cause of death in HIV/AIDS patients. There is a lack of funds set aside for integrated activities, and the TB program has a limited budget.



At the time of this study there was no committee dealing with TB and HIV integration, provincially or nationally. The District Communicable Disease Coordinators (CDCs) do not have adequate time to run both programs and there is a lack of awareness that 50%+ of TB patients are infected with HIV, or that this proportion is increasing.

### **1.8 Conclusion and Recommendations**

At the time of this study there was limited formal integration of TB and HIV/AIDS programs at provincial and district levels, although, in all eight responding provinces, both program heads report to one person, the Chief Director: HIV/AIDS/STI. The informal collaboration that takes place is encouraging since it indicates that there is awareness, at least, of the benefits of integration. Joint strategies and operational plans need to be strengthened for both programs with a budget to support integrated TB/HIV/AIDS activities. Strengthening the elements of integration at government level can be formalized in terms of infrastructure, management and policy. There should be encouragement for the active involvement of, and networking with, NGOs, private organizations, and religious and community groups on TB/HIV/AIDS integration for greater integration at community levels. It is clear that TB/HIV/AIDS integration will strengthen the fight against the dual epidemic because lessons learnt from both programs may be used in a synergistic way to combat both epidemics.

## **2. AFRIKAANSE OPSOMMING**

### **2. STUDIE-OPSOMMING**

Integrasie van die Tuberkulose en MIV/VIGS-beheermaatreëls in Suid-Afrika gedurende Januarie tot Desember 2000.

#### **2.1 Uiteensetting van die studie**

Die Republiek van Suid-Afrika het nege provinsies, elk met sy eie administratiewe struktuur. Elke provinsie het sy eie regering en departemente wat ooreenkom met die nasionale struktuur. Die Provinsiale Departement van Gesondheid het verskillende direktorate waarvan die Direkoraat van MIV/VIGS en Kontrole van Oordraagbare Siektes (TB-program), die teikengroep van die studie was. Al die program-koördineerders (TB en MIV/VIGS) was betrek by die studie om die integrasie beter te kan verstaan, omrede die bestuurders betrokke is met die opstel van 'n beleid en die implementering van hierdie programme. Daar was geen uitsluiting nie.

#### **2.2 Agtergrond van die studie**

In gemeenskappe met 'n hoë MIV voorkoms is TB 'n groot oorsaak van morbiditeit en mortaliteit. MIV is die dryfveer van die TB-epidemie in baie lande (veral sub-Sahara Afrika). TB- en MIV/VIGS-programme deel dus gemeenskaplike faktore, aangesien die voorkoming van MIV 'n prioriteit behoort te wees in die kontrole van TB. So ook behoort TB-behandeling en -voorkoming 'n prioriteit te wees in MIV/VIGS-programme. Voorheen het TB- en MIV/VIGS-programme hoofsaaklik afsonderlike rigtings gevolg. Dus, nuwe strategie vir TB/MIV behoort die sinergie tussen TB- en MIV- programme te ontgin en benut, asook hulle gesamentlike ondersteuning aan die algemene gesondheidsdienste.

Ten einde TB/MIV te beheer, is 'n verskerping nodig om TB-gevalle op te spoor, vertraging in diagnose en behandeling te verminder en addisionele

beheermaatreëls wat bogenoemde stappe teiken, daar te stel, bv. voorkom MIV-oordrag, voorsien voorkomende behandeling teen TB asook Hoogs Aktiewe Anti-Retrovirale Behandeling (HAART).

Die behandeling en ondersteuning van mense wat leef met MIV/VIGS en TB is in die meeste gesondheidsbegrotings gemarginaliseer. 'n Holistiese benadering, integrering van behandelings, inligting en dienste binne die hoofstroom van die algemene gesondheidsdienste en Gesondheids- (dienste)bestuur-inligtingssisteme is baie belangrik om in werking gestel te word vir die implementering van gesamentlike MIV/Vigs- en TB-tegniese bystandmissies.

Die behoefte vir TB-/MIV-samewerking in SA het meer ooglopend geblyk uit die nasionale oorsigte van TB- en MIV/VIGS- asook Seksueel Oordraagbare Infeksie-programme van 1996 en 1997. Aanbevelings is gemaak, onder andere, dat samewerking verbeter in beplanning, voorspraak, gesondheidsopvoeding, opleiding, diensverskaffing, gemeenskapsmobilisasie en operasionele navorsing. Gedurende 1999 het SA begin met TB-/HIV-lootsdistrikte in vier provinsies waar samewerking geïmplementeer is met die "doel om MIV-/TB-dienste uit te brei en te verbeter d.m.v. samewerking tussen opleiding, diensverskaffing en daarstelling van TB-/MIV-opleidingsdistrikte". Hierdie studie beskryf dus die integrasie/samewerking van TB- en MIV/VIGS/SOI-programme op provinsiale en nasionale vlak in die Republiek van Suid-Afrika, twee jaar na die twee nasionale oorsigte en die bekendstelling van die TB-/MIV- lootsdistrikte.

## **2.3 Studiedoelwitte**

2.3.1 Om ondersoek in te stel na die integrasie van die TB- en MIV-beheermaatreëls, op provinsiale en nasionale vlak, in die Republiek van Suid Afrika, vanaf Januarie tot Desember 2000.

2.3.2 Om die sterk en swak punte in die integrasie van TB- en MIV-beheermaatreëls te identifiseer en om maniere aan te beveel om die integrasie te bevorder.

## **2.4 Studie-ontwerp en -metodiek**

Hierdie is 'n kwalitatiewe studie waarin al die provinsiale TB- en MIV/VIGS-koördineerders geteiken is in die Republiek van Suid-Afrika, met betrekking tot die beskrywing, bespreking en relevante inligting- versameling ten opsigte van probleme met TB-/MIV-integrasie asook die sterk en swak punte in die integrasie en laastens inligting oor hoe hierdie probleme opgelos kan word (sien vraelys, "Appendix 1").

Die meting van areas vir TB-/MIV-programme se integrasie sluit in:

Bestuur, beplanning, voorspraak, gesondheidsopvoeding, beleidsformulering, opleiding, diensverskaffing, maatskaplike ondersteuning, gemeenskapsbetrokkenheid, waarneming en monitering en evaluering met operatiewe navorsing.

## **2.5. Metodiek**

Die selfgehanteerde vraelys ("Appendix 1") was eers bespreek en is later aan al die betrokkenes uitgedeel tydens 'n provinsiale TB- en MIV/VIGS-koördineerdersvergadering, gehou te Boksburg - Johannesburg op die 5de en 6de Oktober 2000. 'n Aparte vergadering was gehou met elke provinsiale koördineerder van TB/MIV/VIGS/SO1 om uit te brei oor die vraelys, asook om vrae te beantwoord wat miskien kon ontstaan, enige onduidelikheid oor die vraelys duidelik te maak en die doelstellings van die studie as 'n geheel te bespreek. Die navorser se telefoonnommers (kantoor, huis, sel) was voorsien aan alle deelnemers indien enige vrae/ stellings in die vraelys onduidelik was, sodat dit opgeklaar kon word.

## **2.6 Resultate**

Die terugvoeringsukses van die vraelys was 89% (8 provinsies). Die TB- en MIV/VIGS-programme op nasionale vlak, loop apart en vertikaal, elk met sy eie administratiewe struktuur en begroting, maar albei rapporteer egter aan die Hoofdirekteur: MIV/VIGS en Tuberkulose in al 8 die provinsies wat terugvoer gegee het. Beperkte formele integrasie is gevind op provinsiale vlak, maar daar bestaan samewerking in verskeie aktiwiteite. Vier (4) provinsies het TB-/MIV-lootsdistrikte (KwaZulu-Natal, Wes-Kaap, Limpopo en Oos-Kaap) gehad in 1999.

## **2.7 Uitdagings**

Hoewel daar 'n paar goeie voorbeelde is van samewerking en integrasie, geskied dit grotendeels op 'n informele basis. Elke program word afsonderlik bestuur en vertikaal geïmplementeer. Daar is 'n gebrek aan die besef dat TB die hooforsaak van sterfte in MIV/VIGS-pasiënte is. Daar is 'n tekort aan fondse beskikbaar vir geïntegreerde aktiwiteite en die TB-program het slegs 'n beperkte begroting.

Tydens die studie was daar geen komitee belas met TB- en MIV- integrasie op provinsiale en nasionale vlak nie. Die Distrik Oordraagbare Siektes Koördineerders het nie genoeg tyd om albei programme gelyk te koördineer nie. Daar bestaan 'n gebrek aan bewustheid dat 50%+ van TB- pasiënte met MIV geïnfekteer is en dat hierdie persentasie besig is om te styg.

## **2.8 Opsomming en Aanbevelings**

Tydens die studie was daar beperkte formele integrasie van TB- en MIV/VIGS-programme op provinsiale en distriksvlak, terwyl die program-leiers in al agt provinsies wat gereageer het, aan een persoon rapporteer, die Hoofdirekteur: MIV/VIGS/SOI. Die informele samewerking wat wel plaasvind is bemoedigend aangesien dit dui dat daar wel 'n bewustheid bestaan oor die voordele van

integrasie. Die gesamentlike strategiese en operasionele planne behoort versterk te word vir beide programme met 'n begroting ter ondersteuning van geïntegreerde TB-/MIV/VIGS-aktiwiteite. Versterking van die elemente van integrasie op regeringsvlak moet geformer word t.o.v. infrastruktuur, bestuur en beleid. Aanmoediging moet gegee word vir die aktiewe betrokkenheid van en netwerking met nie-regeringsorganisasies, private organisasies, godsdienstige en gemeenskapsgroepe oor TB-/MIV/VIGS-integrasie vir groter inskakeling op gemeenskapsvlak. Dit is duidelik dat TB-/MIV/VIGS-integrasie die stryd teen albei epidemies sal versterk, want die lesse wat geleer word uit albei programme kan gebruik word om beide die epidemies op 'n sinergistiese wyse te bestry.

### 3. LIST OF ABBREVIATIONS:

<b>AIDS</b>	<b>Acquired Immune Deficiency Syndrome</b>
<b>ARV</b>	<b>Anti-retroviral</b>
<b>BCG</b>	<b>Baccille Calmette- Guerin</b>
<b>CBHC</b>	<b>Community Based Home Care</b>
<b>CDC</b>	<b>Communicable Disease Coordinators</b>
<b>CIDA</b>	<b>Canadian International Development Agency</b>
<b>CMV</b>	<b>Cytomegalovirus</b>
<b>DFID</b>	<b>Department For International Development</b>
<b>DOTS</b>	<b>Directly Observed Treatment (Therapy), Short-Course</b>
<b>HAART</b>	<b>Highly Active Anti-Retroviral Treatment</b>
<b>HBC</b>	<b>Home Based Care</b>
<b>HCW</b>	<b>Health Care Worker</b>
<b>HIV</b>	<b>Human Immunodeficiency Virus</b>
<b>IEC</b>	<b>Information, Education, Communication</b>
<b>IPT</b>	<b>Isoniazid Preventive Treatment</b>
<b>KS</b>	<b>Kaposi's Sarcoma</b>
<b>MTCT</b>	<b>Mother To Child Transmission</b>
<b>NGO</b>	<b>Non-Governmental Organization</b>
<b>OIs</b>	<b>Opportunistic Infections</b>
<b>PCP</b>	<b><i>Pneumocystis carinii</i> Pneumonia</b>
<b>PLWH</b>	<b>People Living With HIV/AIDS</b>
<b>RSA</b>	<b>Republic of South Africa</b>
<b>SHSPH</b>	<b>School of Health Systems and Public Health</b>
<b>STI</b>	<b>Sexually Transmitted Infection</b>
<b>TB</b>	<b>Tuberculosis</b>
<b>UNAIDS</b>	<b>The joint United Nations programme on HIV/ AIDS</b>
<b>VCT</b>	<b>Voluntary Counseling and Testing (for HIV)</b>
<b>WHO</b>	<b>World Health Organization</b>

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## **5. INTRODUCTION:**

### **5.1 Study aim**

To describe the tuberculosis (TB) and human immune deficiency virus/ acquired immunodeficiency syndrome (HIV/AIDS) control programmes integration at provincial and national levels in the Republic of South Africa from January to December 2000; to identify the strengths and challenges in TB/HIV/AIDS integration; and to make recommendations towards improvement of this integration nationally.

### **5.2 Objectives**

- i. To conduct an assessment of integration of the TB and HIV/AIDS control measures at provincial and national levels in the Republic of South Africa during the period January to December 2000.
- ii. To identify the strengths and weaknesses on integration of the TB and HIV control measures and recommend ways to promote integration.

### **5.3 Study justification**

Cases of TB and HIV are increasing in South Africa in spite of efforts at control, and it is necessary to identify ways in which to reverse this trend. Integration of TB and HIV/AIDS programmes has been suggested as a way of improving control of both epidemics.

## 6 REVIEW OF LITERATURE

### 6.1 Current situation of the TB/HIV epidemic

The HIV/AIDS epidemic is currently a global public health emergency demanding effective action and attention. HIV/AIDS is fueling the TB epidemic in Sub-Saharan Africa, and in some countries up to 70% of TB patients are co-infected with HIV. Clinical and epidemiological inter-relationship between TB and HIV/AIDS infection has well been documented<sup>1</sup>, while efforts to tackle TB and HIV/AIDS have been largely separate despite the overlapping epidemiology<sup>2</sup>. WHO published a paper on the link between TB and HIV/AIDS in the late 1980s emphasizing a need for coordinated efforts to tackle these diseases and that; “National TB and HIV/AIDS programmes should include coordinated activities to reduce the impact of the problem and international organizations and donor countries should be encouraged to support them technically and financially.”<sup>3</sup> In the early 1990s, Perriens in his article in AIDS concluded that; “given the profound impact of HIV infection on the incidence and clinical course of TB, close collaboration between TB and HIV programmes is essential<sup>4</sup>.” It is believed that improved co-ordination between TB and HIV/AIDS programmes has the potential to lead to significant public health gains. Linking an HIV/AIDS care package to a national TB programme may provide both programmes with a way of coping with a large co-infected population, as most of our HIV/AIDS patients in Africa are not aware of their HIV status. De Cock in another article, states that; “DOTS alone is unlikely to control TB” in countries with high rates of HIV/AIDS infection, and suggests collaborative efforts between TB and HIV/AIDS programmes<sup>5</sup>.

Suggested ways in which TB and HIV/AIDS programmes may be integrated include; HIV counseling and testing for TB patients<sup>6, 7</sup>; and the use of a minimum package of care for HIV patients that include screening for opportunistic infections (including TB) and treatment<sup>6</sup>. Others suggest the formulation of joint health information messages, such those used in Uganda, which led to TB and HIV/AIDS messages showing a significant association with improved knowledge

and TB case finding nationally and within communities<sup>8</sup>. De Cock also suggests that, "major efforts will be needed by Ministries of Health and TB control programmes to overcome the cultural and philosophic differences that have existed between TB and HIV/AIDS control programmes<sup>6</sup>" and that "there is a need for better communication and integration of activities<sup>9</sup>." It is understood that TB control is closely linked to the control of HIV and thus enhancing integration between TB and HIV/AIDS programmes is important to improve the current TB situation<sup>10</sup>.

The current policy statement from UNAIDS on TB/HIV describes "a dual strategy for a dual epidemic"<sup>1</sup> The dual strategy consists of a strategy for HIV/AIDS care (that doesn't take tuberculosis very much into consideration) and the DOTS (Directly Observed Treatment, Short-course) strategy (that doesn't take HIV/AIDS care very much into consideration). Although the two diseases are considered independently, there is an increasing recognition of tuberculosis as one of the leading causes of HIV related morbidity and mortality, and of the extent to which HIV is fuelling the tuberculosis epidemic in high HIV prevalence populations. It must be emphasized that tackling HIV should include tackling Tuberculosis as a leading killer of People Living With HIV/AIDS (PLWHA), and that tackling tuberculosis should include tackling HIV as the most potent force driving the tuberculosis epidemic.

The new strategy needs to focus on the roles within the overall health system of HIV/AIDS programmes and tuberculosis programmes in supporting the response of health service providers to the needs of people in high HIV-prevalence populations. Health service providers include governments, NGOs, private practitioners and religious organizations. Government health service provision includes not only the Ministry of Health but also other relevant ministries, such as the Ministry of Defense and the Ministry of Correctional Services (responsible for prison health services). The goal of the strategy is to reduce morbidity and mortality due to tuberculosis (while minimizing the risk of anti-tuberculosis drug

resistance), as part of major efforts to reduce HIV-related morbidity and mortality in high HIV prevalence populations. The main focus of the strategy is on sub-Saharan Africa, since it is the region that bears the overwhelming brunt of the TB/HIV pandemic. However, the strategy is also relevant to all regions where high rates of HIV infection may fuel the tuberculosis epidemic.

This dissertation highlights the global TB/HIV problem, with a brief review of global HIV epidemiology, the causes of the main burden of HIV-related disease, TB/HIV epidemiology, and the place of Tuberculosis in the course of progression of HIV infection. There is a description of the evolving international response to TB/HIV and the main interventions available to control tuberculosis in high HIV prevalence populations. A proposal framework for coherent health service response, interventions applicable at different levels and priorities is briefly discussed. Ways forward for collaboration, leading to integration if demonstrably beneficial between HIV/AIDS and TB control programmes in support of the general health service response to TB/HIV are suggested. Since available interventions are of limited value in dealing with certain aspects of TB/HIV (such as: diagnosis of sputum smear-negative pulmonary tuberculosis and extra pulmonary, including disseminated, tuberculosis), a research prioritization is also then discussed. It should be made clear that HIV/AIDS and TB affect the entire spectrum of society as a major public health problem and both diseases cut across all sectors.

### **Aetiology and Pathogenesis of HIV:**

Since the initial isolation of HIV in 1983 and its identification as a causative agent of AIDS shortly thereafter, tremendous progress has been made in understanding the genetic structure and variability of the viral genome, the critical aspects of the virus life cycle, and the functions of viral gene products and their interactions. The elucidation of the structure and function of the two viral enzymes – reverse transcriptase and protease – has represented a critical step in the development of effective anti-HIV drugs. The mechanisms of viral entry

and the mechanisms by which the infection becomes established and spreads are crucial for vaccine and microbicides development efforts.

The challenges remain to develop new drugs for the treatment of HIV infection that are cheaper, easier to take, more potent, and with fewer adverse effects than those currently in use, along with microbicides to prevent sexual transmission of HIV infection; and to identify immunogens able to elicit strong neutralizing responses for the development of effective vaccine<sup>84</sup>.

Its clear that significant levels of virus are present in plasma during all stages of HIV infection, including the clinically asymptomatic phase, and that active virus replication is directly linked to depletion of T-cell population in infected individuals and correlates with progression to disease. This model of AIDS pathogenesis implies that HIV induces disease by replicating at high levels in CD4+ T-cells, thus weakening the immune system and causing it to fail. The basic mechanism of viral replication and pathogenesis are not expected to differ in women and men as HIV infection affects the functioning of virtually all organs systems within the body<sup>85</sup>.

#### **Pathogenesis of TB in the presence of HIV:**

HIV produces infection, depletion and dysfunction in cells expressing the CD<sub>4</sub> epitope, which includes T<sub>4</sub> lymphocytes, monocytes, macrophages. Macrophages in the organs like lungs are primary reservoirs of HIV infection, while HIV infect the lymphocytes in the circulation. Because CD<sub>4</sub> cells and macrophages have a central role in the anti-TB defenses, dysfunction of these cells places patients with HIV infection high at risk for primary or reactivation TB<sup>89</sup>.

Mortality from HIV infection with TB is always 100% as individuals having only TB can be easily diagnosed, prompt anti-TB drugs can be given and reduction in mortality can be seen. In those co-infected with TB and HIV infection, delayed

anti-TB chemotherapy or even cure of TB in these individuals has a high mortality by overwhelming infection in HIV immunosuppression. It should be noted that, the difficult in treating HIV and TB is unusual presentation, difficult in diagnosis and hence delay in instituting the treatment. Hence these problems lead to increased mortality in patients of TB co-infected with HIV<sup>90</sup>.

The clinical symptoms of HIV and TB such as loss of weight, pyrexia, loss of appetite overlap each other making the suspicion of HIV infection difficult unless a clinical response to anti-TB therapy is not on the expected line. Therefore the effects of TB on HIV are<sup>89</sup>:

- i. TB helps in destruction of CD<sub>4</sub> cells
- ii. TB causes release of Tumour Necrosis Factor (TFN) and stimulates multiplication of virus inside T cells.
- iii. Helps release of new virions from HIV infected macrophages.

On the other hand the effects of HIV on TB include the following:

- i. Increased in number of T<sub>8</sub> cells
- ii. Increased tissue destruction
- iii. Decreased Macrophage Activating Lymphokines
- iv. T<sub>4</sub> lymphopaenia
- v. HIV promotes T<sub>4</sub> destruction, CD<sub>4</sub> T cells impairment.

The risk of progression of latent TB infection to clinical forms of disease has been estimated to be 10 times in HIV seropositive population compared with that among HIV seronegatives during first year after HIV infection. Risk of clinical infection is about 5.8% whereas it is only 0.5% among HIV negative.

**Table<sup>91</sup>: Risk of TB Morbidity by HIV infection:**

HIV infection	Risk of Morbidity	
	1 year	Life time
Sero - Positive	5.95%	30%
Sero - Negative	0.5%	5.8%

Narain et al<sup>91</sup> report between 5 – 10% annual incidence of clinical TB among HIV and TB co-infected population compared to 0.2% among HIV sero-negatives. The life risk of TB among HIV positives is about 5 times that of HIV negatives. In relation to TB status, the risk of occurrence of TB in HIV positive tuberculin reactors is estimated to be 30 times that of tuberculin negative HIV positive. The global prevalence rate of HIV infected TB is 125/100,000 of population in adults aged 15 – 45 years. Selwyn et al<sup>92</sup> estimate that about 95% of HIV infected TB cases are attributable to HIV infection and remaining 5% could have developed TB regardless of HIV status. Dolin<sup>93</sup> estimate that in 1990, out of 7.5 million new TB patients, 0.3 million (4%), could be attributable to HIV infection. Of these, 0.2 million occurred in the Sub-Saharan region of Africa.

#### **Opportunistic Infections and Co-infections:**

HIV infection results in progressive damage of the immune systems of infected individuals and makes them susceptible to a diverse collection of bacteria, viruses, fungi, and protozoa that represent the major causes of suffering and death for HIV-1 infected individuals. Opportunistic infections can affect virtually every tissue and organ system in the body, resulting in severe functional compromise. Opportunistic infections remain one of the most important complications of HIV infection and principal cause of death in AIDS patients. Therefore understanding its biology, pathogenesis, interaction with the host immune system and therapy associated immune reconstitution will lead to a major breakthrough in its prevention and treatment<sup>86</sup>.



## 6.2 Global picture of HIV/AIDS and TB:

Globally a total of 36.1 million people were living with HIV/AIDS (PLWH) at the end of 2000, of which 25.3 million (70.1%) were in sub-Saharan Africa and 5.8 million (16.1%) were in South East Asia<sup>11</sup>. Hence the overwhelming global HIV burden is in developing countries, where 95% of HIV-infected people live<sup>12</sup>. Out of 24 countries in the world with an adult HIV sero-prevalence rate in 1999 above 5%, 23 are in sub-Saharan Africa, while literature reveals only one other country with an adult HIV sero-prevalence greater than 5% (Haiti)<sup>12</sup>. In 8 Southern African countries, the adult HIV sero-prevalence rate is above 15%. Therefore, Sub-Saharan Africa bears the largest burden of the HIV/AIDS epidemic. However, some countries in other regions are also badly affected by HIV, with an adult HIV seroprevalence of 1-5%. These include Myanmar, Thailand and Cambodia (SE Asia) and Surinam, Guyana, Panama, Belize, Guatemala and Honduras).<sup>12</sup>

HIV is fuelling the TB epidemic in sub-Saharan Africa as TB is the single biggest killer of people living with HIV. In some countries it is documented that up to 70% of TB patients are HIV positive<sup>13</sup>. Hence HIV prevention should be a priority concern for National TB programmes. UNAIDS estimates that 90% of people living with HIV are unaware of their status, and so a dramatic expansion of Voluntary Counseling and Testing (VCT) is necessary<sup>14</sup>.

Ten years of research on the inter-relationship between TB and HIV/AIDS, shows an increasing recognition that rising burden of TB and HIV calls for new approaches to TB control<sup>15</sup>. These approaches should complement the efforts of national TB programmes to implement the internationally recommended TB control strategy known as the DOTS strategy. In addition HIV/AIDS programmes need to pay more attention to TB as a leading cause of morbidity and mortality in people living with HIV/AIDS<sup>16</sup>.

### 6.3 The burden of HIV-related disease

The pathogens that cause disease and the type of clinical disease they cause, depend on the degree of progression of HIV infection and the associated extent of immuno-suppression of the patients. In the course of HIV infection, high-grade pathogens can lead to the disease at any stage, e.g. the pneumococcus, non-typhoid salmonellae and *Mycobacterium tuberculosis*. Low-grade pathogens (which are rarely pathogenic in healthy persons) cause disease in the more advanced stages, e.g. *Candida* spp., *Cryptococcus neoformans*, *Toxoplasma* spp., *Pneumocystis carinii* and atypical mycobacteria. Disseminated infections become increasingly common in advanced stages of HIV infection with more severe immunosuppression. Infections as a result of the high-grade pathogens tend to be easier to diagnose and treat than those infections caused by the low-grade pathogens<sup>87</sup>.

The disease spectrum in PLWHA sometimes varies between regions. In sub-Saharan Africa the high-grade pathogens (bacterial and mycobacterial) such as the pneumococcus, non-typhoid salmonellae and *Mycobacterium tuberculosis*, which are endemic, highly associated with poverty, and intensely transmitted in overcrowded unsanitary environments, are dominant. Tuberculosis has become the leading cause of death among people with HIV infection, accounting for approximately a third of AIDS deaths worldwide. There has also been recent recognition of the association between HIV infection and increased frequency of clinical malaria in some parts of the world<sup>17</sup>. In this region, some low-grade opportunistic pathogens are important (particularly *Candida* spp. and *Toxoplasma* spp.), but those which dominate the picture in the industrialized countries, such as *Pneumocystis carinii* and atypical mycobacteria, are comparatively rare.<sup>18</sup> Although the spectrum of disease in PLWHA has not been as fully characterized in other regions, a similar pattern is likely to be seen throughout the developing world.

Nearly 90% of all PLWHA live in developing countries in Africa and SE Asia. Therefore worldwide, the main burden of disease in PLWHA arises from a limited number of common infectious agents to which PLWHA are particularly susceptible, namely tuberculosis, the pneumococcus and non-typhoid salmonellae. Diagnosis and treatment of these infections is usually possible at health centers or district hospitals, and they are generally amenable to successful treatment with cheap, affordable and effective antimicrobials. For example, the cost of the drugs for a course of tuberculosis treatment may be as little as US\$10-20 in some countries while its higher in sub-Saharan Africa. South Africa spent more than US\$100 million annually in tuberculosis, in excess of US\$3 billion would be required over the next ten years if the current increases in tuberculosis rates are allowed to continue unabated<sup>36</sup>. WHO has developed an essential drugs list for the treatment of common HIV-related infections (including herpes simplex virus, cytomegalovirus and atypical mycobacteria).

#### **6.4 Pathophysiology of Tuberculosis Disease:**

HIV infection is characterized by a progressive quantitative and qualitative deficiency of the CD4+T lymphocyte population. This depletion results in a number of immune defects, including abnormalities of cytokine and macrophage dysfunction, host defenses crucial against *M. tuberculosis*<sup>19</sup>. As a result of this immunosuppression, there is poor containment of mycobacteria, resulting in higher rates of active disease following an initial infection, and a greater frequency of disseminated and extra-pulmonary disease. These increased risks of active tuberculosis and disseminated disease are directly proportional to the patient's stage of disease and inversely related to CD4 lymphocyte count<sup>20</sup>.

Infection and active disease due to *M. tuberculosis* is increased more than 100-fold in patients with HIV infection<sup>21</sup>. Reactivation of latent tuberculosis occurs at a rate of 5% to 10% per year in HIV-infected patients compared to a rate of 5% to 10% per lifetime in seronegative individuals<sup>22</sup>. HIV-infected patients may also

have more rapid progression from infection to active disease, estimated to range from 37% to 50% within two to four months of the initial exposure<sup>23</sup>.

Pulmonary disease is present in 70% to 93% of TB cases in HIV-infected patients, but up to 43% of patients also have concurrent involvement of at least one extra-pulmonary site<sup>24</sup>. The most common sites of extra-pulmonary involvement are lymph nodes and bone marrow. Blood stream invasion by *M. tuberculosis* is also common, a syndrome rarely appreciated in the pre-AIDS era<sup>25</sup>. Central nervous system disease may manifest as lymphocytic meningitis or a space-occupying lesion (i.e., tuberculoma).

It is clear that HIV is an important driver of the tuberculosis epidemic in several ways<sup>26</sup>. HIV promotes progression to active tuberculosis both in people with recently acquired and with latent *M.tuberculosis* infections. Thus HIV is the powerful known risk factor for reactivation of latent tuberculosis infection to active disease<sup>27</sup>. The annual risk of developing tuberculosis in a PLWHA who is co-infected with *Mycobacterium tuberculosis* ranges from 5-15%. HIV increases the rate of recurrent tuberculosis, which may be due to either endogenous reactivation (true relapse) or exogenous re-infection<sup>28</sup>. Increasing tuberculosis cases in PLWHA pose an increased risk of tuberculosis transmission to the general community, whether or not HIV-infected.

### **6.5 The Epidemiological picture of TB and HIV.**

Available literature tells us WHO and UNAIDS are working to update and refine the most recent 1997 estimates of HIV-related tuberculosis burden by country.<sup>29</sup> Approximately a third of the 36.1 million PLWHA worldwide at the end of 2000 are co-infected with *M. tuberculosis*, and 68% of those co-infected live in the sub-Saharan Africa. This region also carries the overwhelming burden of the global epidemic of HIV-associated tuberculosis. However, 22% of those co-infected are in South East Asia, which also bears a considerable burden of HIV-associated tuberculosis.

Increasing tuberculosis case rates over the past decade in many countries in sub-Saharan Africa and in parts of SE Asia (e.g. northern Thailand) are largely attributable to the HIV epidemic.<sup>30</sup> Since the mid-1980s, in many African countries, plus those with well-organized programmes, annual tuberculosis case notification rates have risen up to fourfold, reaching peaks of more than 400 cases/100,000 population.<sup>31</sup> Up to 70% of patients with sputum smear-positive pulmonary tuberculosis are HIV-positive in some countries in sub-Saharan Africa<sup>13</sup>, and these patients are infectious.

There is thus strong epidemiological justification for TB programmes and HIV programmes sharing mutual concerns. Since HIV fuels the tuberculosis epidemic, prevention of HIV should be a priority for the control of tuberculosis. Since up to half of PLWHA develop tuberculosis<sup>32</sup>, and tuberculosis appears to have an adverse effect on HIV progression other studies show that the host immune response to *M. tuberculosis* enhances HIV replication and might accelerate the natural progression of HIV infection<sup>33</sup>, tuberculosis care and prevention should be a priority concern of HIV/AIDS programmes.

#### **6.6 Burden of HIV/AIDS and TB in Southern and Eastern Africa<sup>34</sup>.**

- i. The TB burden in Southern and Eastern sub- region of Africa is estimated to contribute to 60% of the African region
- ii. Approximately 1.6 million new TB cases occur yearly with an approximate 600 000 deaths.
- iii. It is estimated that 30% of the new TB cases are also infected with the HIV virus.
- iv. Approximately 25.3 million people are living with HIV/AIDS in sub – Saharan Africa.
- v. Approximately 3.0 million deaths during 2000 (adults & children), due to HIV/AIDS with approximately 7.8 million orphans

**Table II: Adult Prevalence of HIV/AIDS Southern / Eastern African region – 2000<sup>35</sup>.**

Country	Percentage
Botswana	35.8
Zimbabwe	25.1
Zambia	20.0
South Africa	20.0
Namibia	19.5
Kenya	14.0
Tanzania	8.1

**6.7 HIV/AIDS in the Republic of South Africa<sup>36</sup>:**

- i. Approximately 50% of TB patients are co-infected with HIV (Medical Research Council estimated 118,366 cases of TB in SA in 2000).
- ii. It is estimated that 4.7 million are infected with HIV and approximately 1.6 million will get TB before dying.
- iii. HIV increases the risk for developing TB but not all HIV positive people have TB and not all TB patients have HIV.
- iv. “TB is curable even in HIV positive while HIV is not”.
- v. All HIV and TB patients often face similar problems, which needs to be addressed; namely:
  - Stigmatization
  - Fear
  - Discrimination
  - Socio-economic stress and
  - All need counseling, care and support.

The magnitude of these diseases nationally and provincially is as shown in the tables on the following pages:

**Table III: Mid-Year Population Estimates for 2001, with and without additional deaths due to HIV/AIDS – RSA and Provinces<sup>37</sup>.**

		Population estimate with deaths due to HIV/AIDS	Population estimate without HIV/AIDS deaths	Implied additional deaths due to HIV/AIDS
RSA	Male	20 337 725	21 438 993	101 267
	Female	21 990 596	22 121 651	131 054
	Total	44 328 322	44 560 644	232 321
Western Cape	Male	2 070 090	2 072 817	2 727
	Female	2 179 457	2 182 926	3 470
	Total	4 249 547	4 255 743	6 197
Eastern Cape	Male	3 245 045	3 255 055	10 010
	Female	3 733 342	3 746 206	12 863
	Total	6 978 387	7 001 260	22 873
Northern Cape	Male	429 621	430 557	936
	Female	450 055	451 261	1 206
	Total	879 675	881 818	2 142
Free State	Male	1 386 473	1 394 010	7 537
	Female	1 430 603	1 440 510	9 907
	Total	2 817 076	2 834 519	17 444
KwaZulu-Natal	Male	4 260 779	4 293 805	33 026
	Female	4 809 679	4 852 492	42 813
	Total	9 070 458	9 146 297	75 839
North West	Male	1 770 059	1 779 343	9 283
	Female	1 834 413	1 846 582	12 169
	Total	3 604 472	3 625 924	21 452
Gauteng	Male	4 039 656	4 063 175	23 519
	Female	3 927 055	3 957 233	30 177
	Total	7 966 712	8 020 408	53 696
Mpumalanga	Male	1 503 464	1 512 212	8 747
	Female	1 587 481	1 598 858	11 376
	Total	3 090 946	3 111 069	20 123
Northern Province	Male	2 632 538	2 638 019	5 482
	Female	3 038 512	3 045 585	7 073
	Total	5 671 050	5 683 605	12 555

**Table IV: Provincial HIV prevalence: Antenatal Clinic Attendees, South Africa 1998 – 2000<sup>38</sup>.**

<b>PROVINCE</b>	<b>Est (HIV+) 95% CI 1998</b>	<b>Est (HIV+) 95% CI 1999</b>	<b>Est (HIV+) 95% CI 2000</b>
KwaZulu-Natal (KZN)	32.5 (29.3- 35.7)	32.5 (30.1- 35.0)	36.2 (33.4- 39.0)
Mpumalanga (MP)	30.0 (24.3- 35.8)	27.3 (25.2- 30.7)	29.7 (25.9- 33.6)
Gauteng (GP)	22.5 (19.2- 25.7)	23.9 (21.7- 26.0)	29.4 (27.9- 31.5)
Free State (FS)	22.8 (20.8- 25.3)	27.9 (24.6- 31.3)	27.9 (24.6- 31.3)
North West (NW)	21.3 (19.1- 23.4)	23.0 (19.7- 26.3)	22.9 (20.1- 25.7)
Eastern Cape (EC)	15.9 (11.8- 20.0)	18.0 (14.9- 21.1)	20.2 (17.2- 23.1)
Limpopo	11.5 (9.2- 13.7)	11.4 (9.1- 13.5)	13.2 (11.7- 14.8)
Northern Cape (NC)	9.9 (6.4- 13.4)	10.1 (6.6- 13.5)	11.2 (8.5- 13.8)
Western Cape (WC)	5.2 (3.2- 7.2)	7.1 (4.4- 9.9)	8.7 (6.0- 11.4)
<b>National</b>	<b>22.8 (21.2- 24.3)</b>	<b>22.4 (21.3- 23.6)</b>	<b>24.5 (23.4- 25.6)</b>



## 6.8 TB IN THE COURSE OF HIV INFECTION

During the course of HIV infection, PLWHA suffer at different times from a number of different HIV-related illnesses, including tuberculosis. Since the mean CD4 positive (+) cell count is around  $300/\text{mm}^3$  in HIV-infected tuberculosis patients<sup>40</sup>, tuberculosis often occurs after PLWHA have already suffered from several other illnesses. For example, among HIV-infected tuberculosis patients in a study in Haiti, 64% had symptomatic HIV infection before the diagnosis of tuberculosis<sup>41</sup>.

At the level of immunodeficiency at which PLWHA develop tuberculosis, susceptibility to a range of diseases is associated with high fatality rates by the end of tuberculosis treatment, typically about 20% for new sputum smear-positive and up to 50% for new sputum smear-negative cases<sup>42</sup>. Many of the illnesses and causes of death in HIV-infected tuberculosis patients are potentially treatable or preventable. Early diagnosis and prompt reporting to health services for treatment are much more advised and encouraged for all patients. Training of patients on the early signs and symptoms of opportunistic infections should be a priority in most patients and health care providers, including for patients with clinical tuberculosis.

**Table V: Estimated total TB case rate per 100 000 population, and the distribution of cases by age group and HIV infection status in South Africa, 1998<sup>39</sup>.**

Province	All age groups		Aged 15 – 49 years				All other ages		% HIV+
	All		HIV-		HIV+		All		
	SM+	SM-	SM+	SM-	SM+	SM-	SM+	SM-	
<b>Western Cape</b>	302	368	189	231	52	93	60	45	21.7
<b>Eastern Cape</b>	270	329	151	184	65	115	54	30	30.1
<b>Northern Cape</b>	183	223	112	137	34	61	37	26	23.3
<b>Free State</b>	150	183	70	85	50	89	30	9	41.8
<b>KwaZulu-Natal</b>	214	261	78	95	94	166	43	0	54.7
<b>North West</b>	144	176	74	91	41	73	29	12	35.6
<b>Gauteng</b>	201	245	105	128	56	100	40	18	34.9
<b>Mpumalanga</b>	152	185	62	75	60	106	30	4	49.2
<b>Limpopo</b>	140	171	82	101	30	52	28	18	26.4
<b>Total</b>	<b>201</b>	<b>245</b>	<b>100</b>	<b>122</b>	<b>61</b>	<b>108</b>	<b>40</b>	<b>15</b>	<b>37.7</b>

**Republic of South Africa in 1998:**

New cases	195 776
Number attributable to HIV	70 117 (36%)

**Table VI: National and Provincial Tuberculosis cases per 1000 population for year 1999 and 2000<sup>43</sup>.**

PROVINCE	Cases 1999	Population 1999	Cases/ 1000 1999	Cases 2000	Population 2000	Cases/ 1000 2000
<b>KwaZulu-Natal</b>	34 481	8 924 643	3.9	28 039	8 986 857	3.1
<b>Mpumalanga</b>	5 226	3 003 327	1.7	5 339	3 042 637	1.8
<b>Gauteng</b>	17 450	7 807 273	2.2	24 861	7 873 205	3.2
<b>Free State</b>	8 885	2 714 654	3.3	9 414	2 790 733	3.4
<b>North West</b>	9 043	3 562 280	2.5	12 191	3 566 777	3.4
<b>Eastern Cape</b>	30 990	6 658 670	4.7	28 916	6 847 162	4.2
<b>Limpopo</b>	5 825	5 337 267	1.1	4 735	5 514 807	0.9
<b>Northern Cape</b>	4 698	875 222	5.4	3 896	872 866	4.5
<b>Western Cape</b>	31 566	4 170 971	7.6	33 848	4 190 656	8.1
<b>National</b>	<b>148 164</b>	<b>43 054 307</b>	<b>3.4</b>	<b>151 239</b>	<b>43 685 699</b>	<b>3.5</b>

### **6.9 The clinical diagnostic picture of HIV-related TB:**

The clinical diagnostic picture of tuberculosis depends on the stage of HIV infection and associated degree of immunodeficiency<sup>41</sup>. In early HIV infection with mild to moderate immunodeficiency, the features are characteristic of post-primary tuberculosis and resemble those seen in the pre-HIV era. More advanced immunodeficiency is associated with an increased frequency of pulmonary disease resembling primary pulmonary tuberculosis and extra pulmonary (including disseminated) disease. Tuberculosis is therefore generally easier to diagnose in early HIV infection, when there is a higher proportion of patients with sputum smear-positive pulmonary tuberculosis, than in later HIV infection, when there is a higher proportion of sputum smear-negative pulmonary TB and extra pulmonary (including disseminated) TB. In most of opportunistic infections and advanced HIV disease in an HIV-positive adult, there is usually an association with a low lymphocyte count (<1500 cells/mm<sup>3</sup>) and a low CD4 (T4) cell count (<300cells/mm<sup>3</sup>)<sup>82</sup>.

Disseminated *M. tuberculosis* infections, which may be detected by blood culture, occur typically with advanced AIDS, with median CD4 cell counts of about 100 cells/mm<sup>3</sup> or less.<sup>44</sup> *M. tuberculosis* is in most cases the cause of bacteraemia in febrile hospitalized HIV-infected persons, with rates of positive blood cultures for *M. tuberculosis* typically in the range of 10-20%<sup>44</sup>. Because of difficulties in diagnosis, disseminated tuberculosis accounts for a high proportion of deaths in hospital of HIV-infected people. For example, in a study in Abidjan, tuberculosis was the prime cause of death in 80 (32%) out of an autopsy sample of 247 HIV-positive cadavers and was widely disseminated in all but 10 patients.

#### **6.10 Strategies to focus on HIV/AIDS and TB prevention:**

Hence a new strategy needs to focus on the roles within the overall health system of HIV/AIDS programmes and TB programmes in supporting the response of health service providers to the needs of people in high HIV populations. The health service providers include governments, NGOs, private practitioners and religious organizations.

The prioritised HIV/AIDS interventions applicable in the home and community and at primary, secondary and tertiary levels represent a package of HIV/AIDS care that general health services should deliver in low-income countries. The essential package of HIV/AIDS interventions that general health services should provide in a low-income country includes:

##### **i. Tertiary level of medical care:**

Management of complications of common HIV-related diseases, includes those due to TB (such as pericardial and peritoneal TB), cryptococcal meningitis, toxoplasmosis and *Pneumocystis carinii* Pneumonia (PCP).

## **ii. Secondary level of medical care:**

This includes the diagnosis and treatment of common HIV-related diseases such as:

- Severe pneumonia
- Diarrhoea and its complications (e.g. septicemia)
- Smear negative and extra-pulmonary (plus disseminated) TB
- Terminal in-patient care
- Disease surveillance, e.g. TB recording and reporting
- Safe blood provision

## **iii. Primary level of medical care:**

This includes Voluntary Counseling and Testing (VCT) for HIV, prevention of HIV transmission (condoms, STI treatment-syndromic management, detection and treatment of common HIV-related diseases – pneumonia, diarrhoea, candidiasis and TB). Chemoprophylaxis against common HIV-related diseases, using eg: isoniazid for TB and cotrimoxazole for septicaemia. Pain relief and disease surveillance are also important.

(Note: Dr Clive Evian in his book “Primary AIDS Care” mentions these general services as Clinical Stages base on WHO staging system).

## **iv. Community Home Based Care:**

Information and education on the basics of HIV transmission, means of prevention and common HIV-related opportunistic diseases are vital. Support groups, community members support to TB patients and advice on breast-feeding should be encouraged.

### **6.11 The Role of International Response to TB and HIV.**

Where integration of HIV and TB programs is poor, one might expect that those involved primarily with tackling tuberculosis and those involved primarily with tackling HIV have largely pursued separate courses. It means therefore, those involved primarily with tackling tuberculosis have concentrated on implementing the recommended tuberculosis control strategy based on case-finding and cure the DOTS strategy<sup>45</sup>, with very little attention to the HIV prevention and care of tuberculosis patients with other HIV-related diseases. In the same manner those involved primarily with tackling HIV have largely concentrated on HIV prevention, with less attention to HIV/AIDS care and in the common HIV-related diseases, including tuberculosis, pneumonia and diarrhoea.

Literature review shows that WHO is currently coordinating global efforts to ensure that tuberculosis patients worldwide, especially in those countries where HIV is dramatically fuelling the tuberculosis epidemic, have access to the basic essentials of tuberculosis control (effective diagnosis and treatment). The provision of tuberculosis diagnosis and treatment may be completely integrated with the general health services. Tuberculosis programmes provide the support to general health services for training, logistics (including drugs and laboratory reagents for smear microscopy diagnosis) and disease surveillance and monitoring (including evaluation of case-finding and treatment outcomes).<sup>46</sup>

There has been some progress in the response to TB/HIV over the past decade. The international policy is available for recording, reporting and treatment with standardized short-course chemotherapy regimens of smear-negative pulmonary and extra-pulmonary as well as smear-positive pulmonary tuberculosis patients<sup>46</sup>. There is clear recognition of how HIV-related tuberculosis differs in clinical presentation and outcome from non-HIV-related tuberculosis. Many countries with a higher TB/HIV burden have adopted and started to implement the internationally recommended tuberculosis control strategy.

Despite considerable progress over the past decade, only 21% of all infectious tuberculosis patients worldwide have access to the basic essentials of effective diagnosis and treatment, provided under the internationally recommended tuberculosis control strategy<sup>27</sup>. Failure to ensure these basic essentials in countries with severe HIV epidemics will result in an increased burden of tuberculosis (in terms of incident cases and deaths) over the coming decades.<sup>47</sup>

It is therefore important to mention that the response to HIV/AIDS involves prevention and care interventions, ideally provided in ways that mutually reinforce each other. One of the rationales for increasing the attention paid to previously neglected care interventions is that HIV/AIDS care provision can help to counter stigma and enhance community receptivity to take up prevention interventions.<sup>48</sup>

One should review briefly the extent to which strategies for care of PLWHA have included tuberculosis. National HIV/AIDS programmes have tended to focus on providing services for the care of PLWHA with known HIV status as the starting point. However, the vast majority of people in developing countries living with HIV infection do not even know they are infected with HIV. For instance in a random population sample in Zambia, only 6.5% of adults had had an HIV test.<sup>49</sup>

It should be emphasized that the general health care services provide the vast majority of the care for most HIV-infected persons, who usually do not know their HIV status, but have received little attention from national HIV/AIDS programmes. National HIV/AIDS programme efforts to improve specific HIV/AIDS services rather than to support the general health service response to the needs of high HIV prevalence populations have run the risk of becoming specialized and elitist.<sup>48</sup>

Hence, the general health services need to meet the needs of a population carrying an excess burden of HIV-related morbidity and mortality on top of the

pre-existing burden due to non-HIV-related disease. Common infections (namely tuberculosis, pneumonia and diarrhoea) and their complications constitute a large part of the excess burden of HIV-related and non-HIV-related morbidity and mortality. General health services need to ensure that HIV-infected and non-HIV-infected persons have access to effective diagnosis and treatment of the diseases common in both groups. There has not been much documented in the progress made in strengthening the general health services at a large scale in high HIV prevalence countries since these are life servicing in most developing countries and therefore need to be strengthened.

In countries with the highest rates of TB/HIV co-infection it is apparent that those involved primarily with tackling tuberculosis and those involved primarily with tackling HIV have common cause in supporting the general health service response to HIV/AIDS. Tackling HIV should include tackling tuberculosis as a major killer of PLWHA; tackling tuberculosis should include tackling HIV as the most potent force driving the tuberculosis epidemic.

#### **6.12. TB Control Measures in High HIV Prevalence Communities**

HIV/AIDS has a specific impact on the dynamics of the tuberculosis epidemic. Therefore controlling tuberculosis in high HIV prevalence populations requires measures not only to achieve high rates of detection and successful treatment of cases which are handled more effectively, but also additional measures<sup>5</sup> beyond case-finding and treatment. Measures are also necessary to decrease morbidity and mortality in HIV-infected tuberculosis patients due to other common infections. These measures should complement ongoing efforts to develop improved specific tuberculosis control tools such as a more effective vaccine, better diagnostic tests, preventive and therapeutic approaches<sup>50</sup>.



### **i. TB case-finding and treatment**

Case finding and treatment to ensure cure are the core tuberculosis control activities. In terms of communicable disease control, the aim is to reduce the average number of people infected by each infectious case sufficiently to interrupt transmission. In order to offset the adverse effect of HIV on the tuberculosis epidemic<sup>29</sup>, tuberculosis control programmes have to be more effective in diagnosing more infectious cases earlier and maximizing achievable treatment success rates in order to interrupt transmission.

The currently recommended approach to case finding involves detecting cases among people presenting with symptoms (especially chronic cough) to general health services. There is often considerable scope to improve the current approach to case finding, since few programmes are achieving the WHO global target of 70% detection of the infectious cases<sup>40</sup>. We can expand case-finding only where tuberculosis control programmes can ensure a high rate of successful treatment.

Otherwise, finding more cases without being able to treat them successfully is likely to result in an increased pool of infectious cases and drug-resistance. The most efficient approach to detecting more cases and with shortened duration of infectivity involves intensified case-finding in settings where HIV-infected people are concentrated: people with respiratory symptoms in general health services (out-patients, in-patients and health care workers), people attending centers for voluntary counseling and testing (VCT) for HIV, prisoners, and household contacts of HIV-positive index infectious tuberculosis cases.<sup>51</sup> Child contact screening is often neglected but is important as an intervention of benefit to individual children (rather than to decrease disease transmission, since children with tuberculosis are usually not infective to others).<sup>52</sup>

Tuberculosis control programmes need to support general health services in ensuring proper case management conditions for patients to complete a course of effective anti-tuberculosis treatment and avoid the risk of drug resistance. WHO recommends directly observed therapy as one of a range of measures aimed at promoting treatment adherence and completion. WHO recommends only rifampicin-containing regimens (refer table vi below)<sup>42</sup>. Among HIV-infected tuberculosis patients, cure rates are higher and death<sup>53</sup> and recurrence rates are lower with rifampicin-containing than with non-rifampicin-containing regimens.

**Table VII: Possible alternative treatment regimens for each treatment category<sup>42</sup>**

Treatment category	Tuberculosis (TB) patients	Alternative treatment regimen	
		Initial phase daily or 3 times per week	Continuation phase
I	New smear-positive pulmonary TB; new smear-negative pulmonary TB with extensive paranchymal involvement; new cases of severe forms of extra-pulmonary TB.	2EHRZ (SHRZ)	6HE
		2EHRZ (SHRZ)	4HR
		2EHRZ (SHRZ)	4H <sub>3</sub> R <sub>3</sub>
II	Sputum smear-positive: Relapse; Treatment failure; treatment after interruption.	2SHRZE/1HRZE	5H <sub>3</sub> R <sub>3</sub> E <sub>3</sub>
		2SHRZE/ 1HRZE	5HRE
III	New smear-negative pulmonary TB (other than in Category 1); new less severe forms of extra-pulmonary TB.	2HRZ	6HE
		2HRZ	4HR
		2HRZ	4H <sub>3</sub> R <sub>3</sub>
IV	Chronic case (still sputum-positive after supervised re-treatment)	Refer to WHO guidelines for use of second-line drugs in specialized centers <sup>59</sup>	

**NOTE:**

In the standard code for TB treatment regimens, each anti-TB drug has an abbreviation: streptomycin (S), isoniazid (H), rifampicin (R), pyrazinamide (Z) and ethambutol (E). A regimen consists of 2 phases. The number before a phase is the duration of that phase in months. A number in subscript (e.g. <sub>3</sub>) after a letter is the number of doses of that drug per week. If there is no number in subscript after a letter, then treatment with that drug is daily. An alternative drug (or drugs) appears as a letter (or letters) in brackets.

Innovative approaches to providing patients with the necessary support to complete treatment involve community health workers and community members. Results from five pilot projects (in Botswana, Kenya, Malawi, South Africa and Uganda) emphasizing the roles of community and primary care facility in tuberculosis treatment show that these approaches are generally lower cost and more cost-effective, while maintaining satisfactory effectiveness (treatment success), compared to the traditional approach using hospital in-patient care.<sup>53</sup>

Useful indicators of programme performance include the treatment success rate (interpreted to take into account the high tuberculosis case fatality rate in high HIV prevalence populations) and the rate of treatment interruption (default)<sup>50</sup>. It is reported that few tuberculosis control programmes in high HIV prevalence countries are achieving adequate treatment outcomes<sup>40</sup>. The consequences include not only an increasing burden of tuberculosis, but also the increased risk of drug resistance, usually complicates and increases the costs of, tuberculosis control programmes<sup>54</sup>. Increased funding of tuberculosis programmes has rarely kept pace with the increasing case-load fuelled by HIV. Adequate resources and technical expertise are necessary for programmes to achieve and maintain quality performance. In high TB/HIV burden countries, good national tuberculosis control programmes have succeeded in blunting the impact of HIV on tuberculosis in terms of case notification rates<sup>55</sup> and annual risk of tuberculosis infection

The ongoing tuberculosis transmission occurs during delays in diagnosis and treatment, which may occur even in a relatively well organised national tuberculosis control programmes<sup>49</sup>. Therefore to increase the effectiveness of case-detection and cure in decreasing tuberculosis transmission, it is necessary to minimize diagnostic and treatment delays. Achieving this requires investment in programmes to improve the management of the services and make them more user-friendly and accessible. As a potential area of collaboration, TB

programmes could benefit from HIV programme experience of communication and social mobilization and social mobilization aimed at promoting sexual behaviour change, in order to use these means to promote adherence to tuberculosis treatment.

## **ii. Other measures besides tuberculosis case finding and treatment**

HIV infection fuels the tuberculosis epidemic through a sequence of events. Refer to figure II, “Interventions to interrupt the sequence of events by which HIV fuels the TB epidemic”. The current strategy of effective case-finding and cure addresses the end of this sequence of events, by interrupting disease transmission by infectious cases.

To counteract the impact of HIV, a significant expansion in scope of the strategy for tuberculosis control is required beyond effective case-finding and cure, through interventions aimed elsewhere in this sequence of events. In the following description of these interventions, they appear in order of the sequence of events.

### **6.13. Measures to decrease HIV transmission**

It is important to stress that; HIV fuels the tuberculosis epidemic, therefore interventions to decrease HIV transmission should contribute to decreasing the tuberculosis burden. Increased condom use, treatment of sexually transmitted infections (STIs), reduction in the number of sexual partners, safe injecting behaviour, and drugs to prevent mother-to-child transmission have all been shown effective in preventing HIV infection in pilot projects, controlled trials, or national programmes in less-developed countries. The published evidence is presented below. The key to reducing the HIV/AIDS epidemic is to bring the reproductive rate of HIV susceptible people infected by an infected person over his or her lifetime to below one<sup>57</sup>. Hopefully when this happens the epidemic will eventually die out.

The most efficient way to constrain the spread of HIV in the whole population is to prevent transmission among those for whom the reproductive rate is very high, such as those with multiple sexual partners. Pilot projects have shown the effectiveness of reducing HIV transmission among those with the riskiest sexual behaviour in preventing secondary transmission. Thailand has shown the effectiveness of this approach on a national scale<sup>58</sup>. Literature on epidemiological models show that even in a generalized AIDS epidemic, such as in many countries in sub-Saharan Africa, this strategy is key to lowering prevalence in the whole population. Yet there is no government in sub-Saharan Africa that has systematically attempted on a national scale to reduce HIV transmission among those with the riskiest sexual behaviour.<sup>59</sup>

The nature and the extent of the evidence of effectiveness in decreasing HIV transmission vary between the different preventive measures. Among the range of measures aimed at decreasing HIV transmission, the immediate proximate interventions of proven efficacy in decreasing HIV transmission are condom use<sup>63</sup> and the treatment of STIs. By the nature of the cultural and other determinants of sexual behaviour, the evaluation of behavioural interventions aimed at a reduction in number of sexual partners is complex and it is difficult to demonstrate that declining HIV incidence is due to behaviour change as a result of the public policy. School health education on HIV/AIDS and life skills development have been effective in sustaining safe sex behaviour among young people.<sup>60</sup> A randomized trial in Kenya, Tanzania and Trinidad showed the effectiveness of VCT in reducing unprotected intercourse, as reported by trial participants, and mathematical modeling has indicated the cost-effectiveness of VCT based on the assumption that the self-reported changes in sexual behaviour would translate into decreased transmission of STIs, including HIV.<sup>61</sup>

The scale of HIV transmission and the inadequacy of current funding for HIV/AIDS, especially in sub-Saharan Africa, testify to the pressing need to implement interventions of proven effectiveness, cost effectiveness and

affordability in decreasing HIV transmission. However, assessment of the impact on transmission of HIV infection of interventions aimed at promoting sexual behavioural change awaits the results of ongoing controlled trials.

**i. The role of Antiretroviral therapy in high HIV infection populations.**

There is a need to evaluate whether combination antiretroviral (ARV) therapy in high HIV prevalence populations in sub-Saharan Africa has the same impact in reducing the incidence of tuberculosis as has been shown in Brazil<sup>62</sup>. A recently published mathematical model estimated the impact of low-level use of ARV treatment on the AIDS epidemic in South Africa (but not specifically on tuberculosis)<sup>64</sup>. Of an estimated 2,302,000 incident AIDS cases that would be expected between 2000-2005 with negligible ARV use, 431,000 (19%) of cases would be prevented by the use of triple combination ARV treatment in 25% of HIV-1- infected adults. It is not yet clear whether these are cases of tuberculosis and AIDS that would be postponed as opposed to prevented, since ARV is often started once symptomatic, and TB is often the presenting illness. By this stage of disease transmission of HIV may already have occurred.

However, after 2 years of ARV treatment in one site in southern Africa a 30% reduction in TB incidence rate has been observed (BV Girdler-Brown, personal communication). This may not be sustained however. A theoretical model constructed by researchers at the London School of Hygiene and Tropical Medicine suggests that it may not be. The reason is that those on treatment carry a greater risk of TB than HIV non-infected people, and, since they become long-term survivors on treatment, the cumulative risk may become greater as time passes.

The call for “pilot projects to pioneer the use of highly active anti-retroviral therapy (HAART) in settings with a heavy burden of HIV but without laboratories capable of performing CD4 counts or viral loads” has implications for tuberculosis control. Such pilot projects would enable the evaluation of the impact of HAART

on risk of developing tuberculosis in resource-poor settings<sup>65</sup>. There is some anecdotal evidence from DEBSWANA where a dramatic reduction (up to 30%) TB incidence has been claimed within two years of starting ART. However a mathematical model (not yet evaluated in the field) suggest that a dramatic initial reduction will later evaporate because of:

- Relapse, only 70% of patients will benefit from ART;
- Those on ART still have a greater than average (HIV-ve) risk and they now live longer, so the cumulative number of cases will still be above that for HIV-ve population.

## **ii. BCG immunization**

BCG has little or no effect in reducing the number of adult cases of infectious pulmonary tuberculosis, and so has limited impact on tuberculosis control. WHO has collaborated with UNICEF in establishing guidelines for childhood immunization. In high tuberculosis prevalence countries, the benefit of BCG is in protecting young children against disseminated and severe tuberculosis, e.g. meningeal and miliary tuberculosis. Even where HIV is common, the possible benefits of BCG outweigh the possible disadvantages. WHO recommends BCG for all children in high tuberculosis prevalence countries except children with symptoms of HIV disease or AIDS<sup>66</sup>.

## **iii. Preventive tuberculosis treatment**

Preventive tuberculosis treatment may be aimed at decreasing the risk of

- a) a first ever episode of tuberculosis (in someone exposed to infection or with latent infection), or of
- b) a recurrent episode (in someone who has previously had tuberculosis).



#### **6.14. Strategies for decreasing the risk of a first ever episode of TB.**

People at high risk of developing tuberculosis may benefit from preventive treatment, as an intervention currently for individual benefit rather than as a public health measure to control tuberculosis. WHO has for many years recommended isoniazid preventive treatment (IPT) for those children who are household contacts of infectious index cases of tuberculosis, and who, after screening, are found not to have active tuberculosis<sup>67</sup>. Such patients would require treatment rather than prophylaxis.

In high tuberculosis prevalence countries, between 3.4% and 10% of tuberculin-positive PLWHA may develop tuberculosis per year<sup>42</sup>. Studies show that IPT reduce the risk in the short term of developing tuberculosis to around 40% of what it would have been without such treatment, but did not prolong survival. WHO and UNAIDS recommend IPT for 6 months for tuberculin-positive HIV-infected individuals who do not have tuberculosis (while recognizing that in some settings where tuberculin-testing is not feasible, IPT may still be valuable in HIV-infected individuals at high risk of tuberculosis)<sup>42</sup>. The Centers for Disease Control recommend 9 months of INH preventive therapy in those who are dually infected. In South Africa, IPT is used for 6 months on a number of mines (Prof. BV Girdler-Brown, personal communication).

Between PLWHA, IPT is likely to provide protection against the risk of developing tuberculosis through decreased risk of progression of recent, and of reactivation of latent, *M. tuberculosis* infection. In high tuberculosis prevalence populations, continued exposure to *M. tuberculosis* infection probably accounts for the limited duration of benefit (up to 2 years) following completion of a 6-month course of IPT. The duration of protection depends on the duration of preventive treatment.<sup>68</sup> IPT is recommended even if the patient is on HAART<sup>68</sup>.

The process of delivery by the health services, and completion by the patient, of IPT involves several steps, with a proportion of PLWHA who could potentially benefit falling out at each step. The proportion of PLWHA who in practice do complete a course of IPT, is small. In the short term, WHO and UNAIDS recommend promoting IPT as an intervention for the benefit of HIV-infected individuals rather than as a public health measure to control tuberculosis. In the medium to long term, in order for IPT to be effective as a public health measure to control tuberculosis, it is necessary to find ways of minimizing the fall-out at each step of the process and to expand the provision of services for voluntary counseling and testing (VCT) for HIV.<sup>69</sup>

#### **6.15. Strategies for decreasing risk of recurrent episode of TB:**

Studies in the former Zaire (now DR Congo)<sup>70</sup> and in Haiti<sup>41</sup> showed a higher rate of recurrent tuberculosis in HIV-infected individuals than in non-HIV-infected individuals treated with a 6-month regimen containing rifampicin throughout (the regimen used in the study in Zaire had a 4-drug initial phase and that in Haiti had a 3-drug initial phase). In both studies, post-treatment prophylaxis (isoniazid and rifampicin in the study in Zaire and isoniazid in the study in Haiti) decreased the risk of tuberculosis recurrence in HIV-infected individuals, but did not prolong survival.<sup>70, 41</sup> Further studies are needed to confirm the benefit, establish the optimum regimen (drugs and duration) and assess operational feasibility, before widely recommending treatment aimed at decreasing risk of tuberculosis recurrence.

#### **6.16. Interventions in HIV-infected tuberculosis patients (to reduce morbidity and mortality).**

Common HIV-related infections (e.g. pneumonia and diarrhoea and their complications, fungal infections) cause considerable morbidity during treatment of HIV-infected tuberculosis patients, and contribute to the increased case fatality rate<sup>13,29</sup>. Prophylaxis against these intercurrent infections represents a possible way forward in decreasing morbidity and mortality in HIV-infected tuberculosis

patients. Studies in PLWHA in Cote d'Ivoire have shown the benefit of cotrimoxazole prophylaxis against some bacterial causes of pneumonia and diarrhoea and their complications<sup>71</sup>. UNAIDS and WHO have recommended the use of cotrimoxazole prophylaxis in HIV-infected individuals in Africa as part of a minimum package of care. Further studies are necessary to evaluate the benefit and the duration of effectiveness in other sites, and the feasibility and effectiveness of this intervention under routine conditions.

## **6.17. The Integrated Approach to the Management of HIV/AIDS and TB.**

### **i. Definition<sup>88</sup>:**

Integrated management is an adaptation of policies at national and service delivery levels. The ultimate purpose is to meet the needs of HIV related TB positive persons, including those of their families, communities and the nation as a whole.

### **ii. Reasons for integrating TB AND HIV Program Services**

Information from care providers and people living with HIV and AIDS confirms the need for a comprehensive HIV/AIDS and TB service across the continuum of care because of the relationship between HIV/AIDS and TB. Experience has shown that this approach ensures and helps to reduce stigma and isolation.

Community involvement from the initial stages of planning interventions leads to a high level of commitment during the implementation of activities. An integrated approach accelerates to broader ranges of services in a holistic manner. Involvement of various categories of service providers of care from health and social service programs helps with early detection, case management, referral and psychological support for the reduction of physical and emotional deterioration.

Integration enhances the concept of effective and efficient access to care by people infected and affected by HIV/AIDS and TB. It also strengthens the referral network in the best interest of the client, as prompt and comprehensive treatment would be provided at all levels of care. Integration fosters effective relationship between government, private and non-governmental sectors for improving early detection and continued management of HIV/AIDS and TB.

Efficient use of the scarce resources available especially human and financial resources is possible when integration is institutionalized.

Integration promotes and supports home care and community support groups, thereby creating a conducive environment in which coping behaviour and positive living are promoted.

Many people are co-infected with TB and HIV, therefore the benefits of integration on the two programmes includes<sup>34</sup>:

- Improve TB management of people living with HIV.
- Improve AIDS care for TB patients.
- Improve HIV prevention hence decrease TB incidence.
- Better TB care with decreased morbidity and mortality.
- Improve health and socio-economic conditions.
- Educate on the interaction of TB & HIV infections, prevention of HIV and encourage seeking care for TB symptoms.
- Provide better support and care in the affected individuals, families and community.
- Management and effective use of resources and closer working relationships in both programs to reflect diminution in availability of both professional and lay care staff to tackle the epidemic.
- Reduce TB and HIV incidences in the population.
- Leads to early detection of TB.

### **6.18. Health Service Response to HIV/AIDS Services.**

In the literature the following responses have been suggested to the TB/HIV services.

#### **Criteria in determining priority interventions**

Those countries worst affected by HIV/AIDS are those with the least resources: of the 24 countries in the world with an adult HIV seroprevalence in 1999 greater than 5%, 23 are in sub-Saharan Africa and the other country is Haiti<sup>12</sup>. In most of these countries, basic health care is scant and to provide even the basic health needs of newly identified HIV patients would require large investments in order to increase training of personnel, to improve infrastructure to deliver services and to ensure sustainable improvements.

No health system can achieve everything possible and desirable all at once, and all health systems face resource constraints. Therefore systematic, rational and explicit ways of identifying priorities are necessary. The greater the resource constraints, the more important prioritization becomes, in order to ensure the most effective use of the limited resources available. In determining public health priorities among the wide range of problems faced by a population, rational criteria include:

- (a) the extent of the disease burden;
- (b) the availability, cost-effectiveness and affordability of the relevant public health interventions to alleviate that burden;
- (c) the social, economic and political consequences of failing to implement the interventions.

### **6.19. HIV/AIDS care incorporating TB interventions**

Although countries determine their own priorities, the application of rational criteria for prioritization among countries of similar resource level facing similar problems is likely to produce broadly similar results. The framework below indicates the likely prioritization for HIV/AIDS interventions applicable at different levels of the health care system according to a country's resource level. The interventions applicable at each level of the health care system generally include the interventions applicable at the previous level. For example, interventions applicable at the tertiary care level also include those applicable at the secondary care level, and those applicable at the secondary care level generally include those applicable at the primary care level. Classification of resource level is according to low-income (per capita GNP < \$635), middle-income (per capita GNP between \$635 and \$7,911) and high-income (per capita GNP > \$7,911)<sup>72</sup>. The framework can accommodate the possibility of significant increases in funding, which could result in the applicability of more interventions in the low- and middle-income countries, at the relevant levels of the health care system.

Tuberculosis-specific interventions within the framework should be mostly applicable in low-resource settings, where 95% of the world's tuberculosis cases and 98% of tuberculosis deaths occur<sup>73</sup>. Some particular aspects of TB/HIV pose challenges for which currently available interventions may be of limited value. The framework can accommodate the future development of improved interventions aimed at tackling these aspects, e.g. validated specific and sensitive diagnostic approaches for smear-negative pulmonary and extrapulmonary, including disseminated tuberculosis.

#### **i. Home and community care**

In the home and community, interventions made available as part of community support for PLWHA should include supporting tuberculosis patients to complete treatment<sup>74</sup>. There is a need for targeted information/education/communication interventions aimed at encouraging PLWHA to regard the development of features of tuberculosis as an opportunity to seek help for a treatable condition with the prospect of increased health and life expectancy, rather than as an ominous sign of AIDS. This framework focus on those aspects of TB control that need to be integrated into general and HIV-specific services at all levels of intervention and is based on recent WHO recommendations.

## **ii. Primary care**

At primary care level, measures for detecting and treating common HIV-related disease should include diagnosis and treatment of infectious (sputum smear-positive pulmonary) tuberculosis cases, in people presenting to general health services with chronic cough and in people in congregate settings (e.g. prisons, health care facilities). Measures for the prevention of common HIV-related diseases should include isoniazide for the preventive treatment of tuberculosis<sup>18</sup> and cotrimoxazole for the prevention of common bacterial infections.

Information on reporting of tuberculosis cases and recording of tuberculosis treatment outcomes passes from primary care level to those responsible at district level for communicable disease surveillance. The tuberculosis surveillance system can be a starting point for the development of systems of surveillance of other HIV-related diseases, which are currently lacking or poorly developed at all levels of care.

## **iii. Secondary care**

Measures at the secondary care level should enable the diagnosis and treatment of common HIV-related diseases, including sputum smear-negative pulmonary tuberculosis and extrapulmonary tuberculosis (diagnosis of which requires investigations usually available only at secondary level, such as X-ray and

biopsy), in addition to sputum smear-positive pulmonary tuberculosis (diagnosis of which requires sputum smear microscopy often available at primary level). Interventions should be implemented to protect health care workers from occupational exposure to HIV and HIV-related diseases, including tuberculosis<sup>75</sup>.

#### **iv. Tertiary care**

At the tertiary care level, measures for diagnosis and treatment of complications of common HIV-related diseases should include specialist management of complicated forms of tuberculosis such as peritoneal and pericardial tuberculosis.

### **6.20. Recommended a package of HIV/AIDS care in low-income countries.**

The prioritized HIV/AIDS interventions applicable in the home and community and at primary, secondary and tertiary care levels represent a package of HIV/AIDS care which general health services should deliver in low-income countries.

#### **i. Financing of interventions**

Justification of government financing of health interventions, rather than relying on private markets, depends on three main considerations:

- a) reduction or alleviation of poverty,
- b) public goods and externalities, and
- c) failures in markets for health care and health insurance<sup>76</sup>.

#### **a) Reduction or alleviation of poverty**

A growing body of evidence shows that better health contributes to greater economic security and growth. Within the poorest 20% of the world's population, communicable diseases represent the greatest burden (and in adults the three leading causes of communicable diseases burden are tuberculosis, HIV and malaria). These groups of diseases were responsible for 59% of deaths and 64% of DALY's lost. Among the richest 20% of the globe, the figures are 8% and



11% respectively<sup>77</sup> The contribution to poverty reduction of investment in TB/HIV interventions justifies as role for government financing.

### **b) Public goods and externalities**

The strict economic definition of a public good is a good that is “non-rival” in consumption and “non-excludable” – no one can be excluded from its consumption once it is provided, and consumption by one individual does not reduce the amount that can be consumed by other individuals. Public goods will not be provided by the private market, because there is no way of making people pay for things that they can consume without payment. Government funding is therefore necessary to ensure their provision, and so there are strong grounds for arguing that such goods should have first call on public resources. An example of a public good is an information/education/communication campaign as one of a range of measures targeted at tuberculosis patients to help them to adhere to treatment.

Externalities exist when the benefits or costs associated with an intervention extend beyond the individual receiving the intervention. Where there are important externalities (e.g. treatment of an infectious disease such as tuberculosis benefits the population beyond the individual actually being treated), consumption of an effective intervention is likely to be sub-optimal in the absence of public intervention, and public intervention to ensure more optimal consumption is justified. This does not necessarily mean direct government provision of the intervention, but it does imply that some public funding is required to ensure optimal consumption.

### **c) Failure in markets for health care and health insurance**

For some diseases or infections, the costs associated with obtaining available interventions are high in relation to an individual of household's capacity to cover

these costs. The usual market solution for such catastrophic financial risks is insurance, but individuals or households may be unable to obtain insurance. For example, the relevant insurance policy may not be available, and/or some individuals may be considered too high risk and be refused cover. When individuals/households are vulnerable to catastrophic financial risks and they cannot obtain insurance to protect themselves against such risks, there is a case that the government (on behalf of society as a whole) should assume responsibility for such risks and fund the interventions associated with them. Most individuals with HIV and/or tuberculosis cannot obtain insurance once they have the infection/disease, and many individuals at high risk of contracting tuberculosis or HIV do not or cannot obtain insurance either. Market failure in providing TB/HIV care therefore justifies a role for government financing.

#### **6.21. Collaboration Between HIV/AIDS and Tuberculosis programmes in support of general health services**

On account of the overlapping epidemiology of tuberculosis and HIV, and the mutual benefits of efforts in tackling tuberculosis and HIV, there is growing recognition of the need for increased collaboration between tuberculosis and HIV programmes (leading to integration is demonstrably beneficial) in support of a coherent health service response to TB/HIV, with improved care for people in high HIV prevalence population. Collaboration in support of a coherent health service response implies support to the different services providers that constitute a health service. Increased collaboration between HIV/AIDS and tuberculosis programmes has the potential to yield benefits for more effective and efficient training, drug supply, case management and surveillance.

Identifying ways to yield the benefits of increased coordination and collaboration between HIV/AIDS and tuberculosis programmes requires policy analysis and operational research on the ground. Policy analysis is useful to identify the barriers which up to now have largely hindered effective collaboration and ways of overcoming them. Operational research projects, such as the WHO-

coordinated Adult Lung Health Initiative and the Pro TEST Initiative<sup>78</sup> are useful at district level to identify practical ways of collaboration and to evaluate the outcomes of a more concerted approach. Such research informs policy and strategy development.

### **i. Policy analysis**

Policy analysis is necessary to contribute to the development of more effective ways by which national HIV/AIDS and tuberculosis programmes can support general health services. The main areas of work include:

- a) critically reviewing policy development aimed at promoting the closer collaboration and integration of national HIV/AIDS and tuberculosis control programme activities;
- b) analyzing barriers to national HIV/AIDS and tuberculosis programme collaboration and integration;
- c) identifying opportunities and mechanisms for more effective national HIV/AIDS and tuberculosis programme collaboration and integration;
- d) identifying the relative advantages of different stakeholders in acting as the main implementers of the different interventions.

### **ii. The Adult Lung Health Initiative**

Strengthening of the general health services is crucial to ensuring that PLWHA have access to care for common HIV-related diseases, including the respiratory diseases (especially pneumonia and tuberculosis) that constitute a large part of the burden of HIV-related and non-HIV-related disease. Through the ALHI, WHO is coordinating the development of guidelines and algorithms based on syndromic approach aimed at improving the general health service management of common respiratory problems. The ALHI will be an entry point to developing an evidence-based algorithmic approach to the common problems of adults, analogous to the Integrated Management of Childhood Illness (IMCI).

### **iii. The Pro TEST Initiative**

At least 90% of the 24.5 million PLWHA in sub-Saharan Africa do not know that they are HIV-positive. It is likely that more people will choose to have HIV testing when services are available which link the provision of VCT for HIV with the provision of other services for the prevention and treatment of common HIV-related diseases, e.g. tuberculosis. Figure III: "Clinical algorithm for management of TB and PLWHA"; shows schematically how VCT for HIV can be a point of access to a range of HIV/AIDS and tuberculosis prevention and care interventions, and how this range of interventions may serve to promote VCT for HIV. Knowing, too, that a person is not infected with HIV can lead to intensified efforts to maintain that infection-free state.

WHO is facilitating operational research through the Pro TEST initiative, which aims to promote HIV voluntary testing as a key to a more coherent response to tuberculosis in high HIV prevalence settings. The name "Pro TEST" reflects the promotion of voluntary HIV testing, as an entry point for access to HIV and tuberculosis prevention and care. The initiative supports district-level field experience in several pilot sites of combining efforts against HIV and tuberculosis to reduce the combined HIV/tuberculosis burden. This will contribute to the development of a strategic approach that can be promoted as an expansion in scope of the internationally recommended tuberculosis control strategy.

From 1999 WHO in collaboration with UNAIDS have started to establish a coordinated network of pilot sites for evaluation of integrated service delivery to reduce the burden of Tuberculosis and HIV.

It is believed that wide experience gained in several pilot sites will lead to the development of a district-based model for integrated delivery of health care services (government, NGO, community and private sectors). Experience in developing links at district level between different service providers will inform policies for the development of links at the region, province and national levels.

Results from district-based pilot sites will inform the development of policy guidelines for scaling up the model on a wider scale if shown to be acceptable, effective, affordable and cost effective. This model will be disseminated with the ultimate goal of reducing the burden with Tuberculosis and HIV.

### **6.22 Priority of HIV/AIDS Research Needs.**

The goal of TB/HIV strategy is to reduce morbidity and mortality due to Tuberculosis plus minimizing anti-TB drug resistance as part of the effort to reduce HIV-related morbidity and mortality in high HIV prevalence communities. This needs scaling up of the current efforts to implement interventions of proven effectiveness, and research to determine how to implement these interventions and monitor their impact, and to develop improved and new interventions, including specific control tools such as: a more effective vaccine<sup>77</sup>, better diagnostic tests, preventive and therapeutic approaches<sup>80</sup>.

To monitor the impact of the interventions, epidemiological research is necessary to address the extent of spread of Tuberculosis to HIV- negative people, as reflected by the annual TB infection or ARI also should do molecular epidemiological research. Key clinical research is how to improve the diagnosis of sputum smear-negative pulmonary and extra-pulmonary TB including in children. Furthermore, evaluation is necessary of prophylaxis against common bacterial (eg the pneumococcus, non typhoid salmonellae) and fungal (e.g.cryptococcus) infections in decreasing morbidity and mortality in HIV infected TB-patients. Studies with co-trimoxazole are necessary to evaluate the benefit and duration of effectiveness in other sites, and the feasibility and effectiveness of the interventions. CDC recommends for CD4 + < 200 and lifelong for post meningitis, even if on ART. It is actually expensive. Churchyard et al have recently shown that: HIV+TB duration is 2 – 3 months smear positive 40% and HIV-TB duration is 1 year smear positive 60%. Hence it likely that HIV+TB plays a less significant role in spread. Research is also necessary to

evaluate the effectiveness of fluconazole as a primary prophylaxis against invasive cryptococcal diseases.

### **6.23. Barriers to HIV/TB Interaction.**

Barriers suggested based on the WHO are as follows<sup>81</sup>:

#### **i. Programme structure**

National TB programmes are generally vertical with personnel at central, regional and district programme levels and integration of TB care into general health service provision. National AIDS Control Programmes may be centralized and strategic planning departments have not had programme staff equivalent to those of national TB Programme. This may vary between countries. Difference is more at district level with TB care being health facility based, run by nurses and catering for many TB patients, whereas few countries are accessible to VCT or HIV activities in general facilities.

#### **ii. Programme culture / philosophy**

National TB Programme have a long history and research base that generated the DOTS strategy; have a simpler strong public health focus, very medical and deliver medical solutions for a disease that is treatable. HIV/AIDS programmes have a short history, deal with a massive emerging problem and are only gradually developing evidence to support the best course of action. HIV is preventable and not curable and interventions tend to be primarily behavioral rather than medical. HIV/AIDS has a strong focus on human rights, confidentiality and involvement of people living with AIDS.

#### **iii. Programme focus**

TB programmes have focused more implementing the DOTS strategy while HIV/AIDS programmes have tended to concentrate on prevention through awareness campaigns, peer group education and condom distribution.

**iv. Lack of political commitment at both international and national level**

National political commitment may be lacking in some countries and this will be a barrier even for TB/HIV collaboration.

**v. No internationally agreed TB/HIV strategic framework**

Strategic framework is an important tool to effective working with partners and a guide for national programmes where technical capacity may be low.

**vi. Lack of resource distribution and HIV/AIDS care and support**

HIV/AIDS care is given a low priority internationally despite the current escalating epidemic.

**vii. Other barriers**

Other barriers include: lack of a clear package of care for PLWA, capacity within HIV/AIDS programmes, communication between international, national and district programmes plus stigma. Health worker's attitudes to HIV/AIDS patients and awareness of the TB/HIV integration with lack of awareness on the link between TB and HIV.

It is therefore important that TB and HIV/AIDS programmes have a clear understanding of areas of common interest and interact at the national level to help interaction lower down the structure.

#### **6.24 Recommendations to Strengthen the TB and HIV/AIDS Programme Collaboration:**

The following are recommended mechanisms to strengthen integration between TB and HIV/AIDS<sup>83</sup>:

##### **i. At international level, promote collaboration through:**

- a) Developing and widely disseminating the global TB/HIV strategic framework.
- b) Clarifying the roles and responsibilities of, and linkages between UNAIDS and WHO.
- c) Increasing political commitment to HIV-related TB.

##### **ii. At the national and district level, promote TB and HIV/AIDS programme collaboration, in support of strengthened health service response, through:**

- a) In country high level political commitment.
- b) Joint planning meetings.
- c) Joint training of programme and general health service staff in TB/HIV issues.
- d) Joint TB and HIV/AIDS programme reviews.
- e) Utilisation of existing organisational structures and the sharing of experience.
- f) A strengthened referral system.
- g) Implementing TB/HIV care packages such as those piloted by ProTEST initiative.
- h) Formulation of joint education messages.



**iii. Increased financial and technical assistance to TB and HIV programmes through:**

- a) Coordinated support from WHO HIV and TB programmes (at country, regional and HQ level).
- b) Joint advocacy with UNAIDS and other international partners for greater international and national commitment to HIV-related TB.
- c) Dialogue with international development assistance agencies and global financing institutions on funding joint TB/HIV activities.

**6.25. Objectives of Integration.**

In well established and functioning programmes, the TB&HIV/AIDS integration objectives includes:

- i. Develop and review policy guideline and legislation on TB/HIV/AIDS.
- ii. Improve access to quality and timely HIV/AIDS and TB diagnosis. treatment, prevention, psychological support and care.
- iii. Establish multi-sectoral and multi-disiplinary response to TB and HIV epidemic, mechanisms for coordination and mobilize adequate resources for response.
  - i. Raise and strengthen health worker and community awareness on TB/HIV response.
  - ii. Promote operational and basic research, program evaluation and epidemiological surveillance on TB and HIV infections.

**6.26. Indicators in Established TB/HIV Programme Integration:**

- i. Implementation indicators: joint committees, manuals, guidelines, educational materials, supervision arrangements, joint IEC and advocacy
- ii. Outcome/impact indicators: prevalence of infections, cure rates, smear conversion rates, percentage of patients on DOT, interrupters/defaulters resources mobilized, standard guidelines follow up.

### **6.27 Key Principles for TB/HIV Programme Integration**

The following are the key principles in establishing a well functioning TB/HIV programme integration:

- i. Strong technical units for support of service delivery globally and nationally.
- ii. Programs, organizations, and communities addressing both TB and AIDS diseases should join strength to fight both diseases.
- iii. HIV/AIDS and TB programs should benefit from each other's strengths (life skills training, build partnership, community mobilization, recording/reporting systems).
- iv. Utilize the strengths and weaknesses learnt from both programs to contain the prevailing epidemic.
- v. Political commitment for both diseases from national to community levels.

### **6.28. RECOMMENDED COMPONENTS IN TB/HIV INTEGRATION:**

The recommended World Health Organisation (WHO) HIV/AIDS/TB integration tool includes eleven components. These were discussed extensively in Harare WHO Workshop in which I was a participant myself. These components were considered to be very relevant and important in this South African study, especially bearing in mind that it covers almost all important areas in both Tuberculosis and HIV/AIDS programmes. The components include:

- i. Management
- ii. Planning & finance
- iii. Advocacy
- iv. Health education
- v. Policy
- vi. Health Care workers training
- vii. Service provision
- viii. Social support
- ix. Community involvement
- x. Monitoring and evaluation
- xi. Operational research.

## **7.00 METHODOLOGY**

### **7.1 STUDY SETTING**

The Republic of South Africa has nine provinces each with its own administrative structure. Each province has its own government and departments that resemble the national structure. The Provincial departments of health have several directorates of which the directorates of HIV/AIDS and Communicable Diseases Control (TB programme) formed the study population. All programme coordinators (TB and HIV/AIDS) were included in the study as they are the managers involved in policy formulation and implementation for these programmes. There were no exclusions, as all provinces are vital in the implementation of these services for a more effective response to these epidemics.

### **7.2 STUDY OBJECTIVES**

- i. To conduct an assessment of integration of the TB and HIV/AIDS control measures at provincial and national levels in the Republic of South Africa during the period January to December 2000.
- ii. To identify the strengths and weaknesses on integration of the TB and HIV control measures integration.
- iii. To recommend ways to promote programme control measures integration.

### **7.3 BROAD STUDY DESIGN:**

Measurement of areas of TB/HIV programs integration, includes: Management, planning, advocacy, health education, policy formulation, training, service provision, social support, community involvement, surveillance, monitoring and evaluation and operational research.

#### **7.4 JUSTIFICATION FOR THE STUDY:**

- i. TB and HIV/AIDS programmes integration is a more effective response to HIV-related TB infection and lead to better preventive and care for the large number of South Africans who are affected by these epidemics.
- ii. External donors will view enhancing integration between TB and HIV/AIDS programmes in a positive light.

#### **7.5 INCLUSION CRITERIA:**

All provincial TB and HIV/AIDS coordinators (in some provinces known as Communicable Disease Coordinators) were included in the study.

#### **7.6 EXCLUSION CRITERIA:**

There were no exclusions.

#### **7.8 STUDY DESIGN:**

A qualitative cross-sectional survey was conducted after a discussion of the study background and objectives with all respondents at the Provincial TB and HIV/AIDS coordinators meeting in Boksburg - Johannesburg on 5<sup>th</sup> and 6<sup>th</sup> October 2001.

A self-administered questionnaire (Appendix I) was distributed to all respondents as the means of data collection. Provision was made for open-ended responses. Each Provincial Programme Coordinator for TB and HIV/AIDS/STI and also national heads of TB and HIV/AIDS were requested to complete the questionnaire independently and return the completed questionnaire by mail or fax. The purpose of the study had been discussed with respondents at the Boksburg meeting.

A contact telephone number was provided in case of unclear questions/ statements in the questionnaires – to be directed to the author and up to four telephonic reminders were given before attempts to obtain completed questionnaires were abandoned.

Separate discussions with HIV/AIDS/STI and TB programme coordinators from each programme were conducted telephonically for 15 minutes before and after completion of the questionnaires. This served as a reminder for non-respondents and elaboration on the responses from the respondents before starting analyzing the available data. It also assisted in checking on the correctness of the researcher's understanding / interpretation of the responses as well as ensuring that the correct persons had completed the questionnaires. Respondents were contacted by email if they were not reached by telephone to clarify areas that were not clearly answered. Where telephonic contacts had failed, e-mail communication was used.

In addition, these person-to-person contacts enabled the author to feed-back to respondents in order to ensure that the process did not create false impressions about the nature / purpose of the research or about the benefits or processes of integration.

The questionnaires were open ended to give the respondents more opportunity to express their thoughts / ideas and suggestions on improvement of the health services provided. Each sub-section of the questionnaire was separately analyzed and graded by percentage versus the number of respondents providing that particular service. If nine of eighteen (18) respondents shared the same response, they were graded as 50%. A table of responses discussions and comments was prepared for each of the eleven components in the study. Major challenges were highlighted and discussed and conclusions were reached.

A feedback meeting to discuss the collected data was conducted to elaborate on any misunderstanding in the collected information. After this meeting a separate meeting was also conducted with the Chief Director: HIV/AIDS/TB and the Director: TB Programme for clarification of information collected before preliminary and final data analysis.

### **7.9 The Scope of the Questionnaires.**

The questionnaire was designed to cover the following issues:

- i. Possible indicators of integration / collaboration of the TB and HIV/AIDS programme services.
- ii. Current existing areas in integration /collaboration between the two programmes (TB and HIV/AIDS)
- iii. Factors / barriers that limit or prevent development of integrated structures and activities at different levels.
- iv. Strengths in each programme that promote integration / collaboration.
- v. Areas that TB and HIV/AIDS programmes support the general service response and that needs strengthening.
- v. Suggestions for solving existing operational challenges identified during the study and encourage future development in the integration process.

**Note:** The questionnaire was open-ended to provide the respondents with the opportunity to elaborate their responses.

### **7.10 Study Group.**

The study sample was deliberately chosen to include:

- i. All the nine (9) Provincial TB and HIV/AIDS coordinators in the Republic of South Africa, (total 18 respondents)
- ii. Two National Programme Directors (from TB and HIV/AIDS) programmes.

Hence the total study group included 20 participants.

## 8. RESULTS AND NARRATIVES

8.1. The response rate to the questionnaires was 90% (18 respondents), with 1 province out of the nine failing to respond. Nationally the TB & HIV/AIDS programs run separately and vertically each with its own administrative structure and budget, but both report to a common Chief Director. No formalized integration is expressed at provincial level. Four (4) provinces have TB/HIV pilot districts (KwaZulu-Natal, Western Cape, Northern Province and Eastern Cape) from 1999. In some provinces the 2 respondents initially gave different responses to the same question. This led to further enquiry by telephone, and in all cases consensus was obtained. The 2 respondents from National Health consistently gave the desirable responses indicating good integration of the two programmes, except that the perception exists that the TB control efforts are inequitably funded relative to the HIV control efforts.

As a result, where it is stated that, say, 14 out of 16 respondents are found to have a satisfactory or unsatisfactory response to a particular item (from the perspective of good integration), this means that it is true for 7 out of 8 (7/8) provinces.

The results are presented in table format, 2 tables for each component (a & b), a for general and b for report summary comments. A short narrative follows each table. The percentages are calculated out of the responses from the provinces for better understanding of what is happening at the provincial level. The following key has been used to summarize the responses.

**Table 8: Key for interpretation of “positive” results in Tables 8:1 to 8:11.**

Percentage of integration	# of Respondents	# of Provinces
76 - 100 % (“Excellent”)	14 or 16	7 or 8
51 – 75 (“Good”)	10 or 12	5 or 6
26 – 50 (“Fair”)	6 or 8	3 or 4
1 – 25 (“Poor”)	≤ 4	≤ 2

**Table 8.1a Responses to the management component of the questionnaire**

- 
- a Ten out of 16 respondents (5 provinces) (62.5%), organogram shows that the TB/HIV/AIDS/STDs programmes are under separate directorates (PHC, CDC, HIV/AIDS/STDs). Six out of 16 (37.5%) organogram show that it's under one directorate although each has its own administrative structure.
- b Sixteen out of 16 (all 8 provinces), (100%) respondents indicate the existence of some integration of TB/HIV/AIDS/STDs. Areas of integration vary per province and include: TB/HIV /AIDS districts, training, planning, HBC, resources, advocacy, HE, and policy formulation. Each province has its own preference for areas of integration.
- c Fourteen out of 16 (7 provinces), (87.5%) respondents highlighted problems hindering integration of TB/HIV/AIDS to be: different focus of the two programmes, no information on TB/HIV incidence, lack of realization that TB control is dependent on HIV control; lack of funds and limited budget for TB; work load and District CDC coordinators have no time for both programmes. Two out of 16 (12.5%) provided no reason.
- d Fourteen out of 16 (7 provinces) (87.5%) respondents suggested the following solutions for better improvement on the integration of HIV/AIDS & TB programmes: integrated setting and joint planning, and regular meetings on responsibility for care and support; release available funds and joint effort on TB/HIV data, with availability of human resources to combat the dual of the epidemic in the next ten years; have one coordinator for HIV/AIDS and a new organogram to combine the two programmes; and appoint district coordinators for HIV/AIDS program. Two out of 16 (12.5%) respondents provided no suggestions.
- e Fourteen out of 16 (87.5%) (7 provinces) respondents recommended key areas for better integration of the two programmes to include: policy formulation, management with training of HCWs and strategic planning; Advocacy on World TB and AIDS days, affected clients counseling with home care, VCT plus support of HIV clients, HBC, AIDS education, Care and support. Two out of 16 (1 province) (12.5%) respondents gave no recommendations.
- f Ten out of 16 (5 provinces), (62.5%) respondents reported no existence of a joint committee dealing with TB & HIV/AIDS in their respective provinces. Six out of 16 (37.5%) had committees in the following areas: TB/HIV pilot sites, Regional and district level committee, PHC integrated forum, VCT and Health Promotion.
- g Sixteen out of 16 (100%) respondents mentioned some NGOs and CBOs, which are important in TB/HIV/AIDS/STDs integration in the provinces to include: SANTA, TADSA, ATTIC, and PWA/PWD. Others includes: Churches, HBC group, South Coast Hospice, SAHECO, Ndudezwi, Nobuhle, LifeCare, NAPWA, CHOICE, HSD, TB Care, SACIA, NACOSA, SWEAT.
- h Ten out of 16 (62.5%) (5 provinces) respondents mentioned: District CDC managers, Health teams, HIV/AIDS/TB forum and CBC coordinators as structures at regional and district levels addressing TB/HIV integration. Six out of 16 (37.5%) respondents mentioned no structure.
-



**Table 8.1b Summary of responses to the management component questionnaire with comments**

Question #:	Percentage (%) scored	Reported Comments
a	37.5	In only 3/8 provinces both programmes are under one directorate.
b	100	Some integration exists
c	87.5	Highlighted problems hindering integration,(refer section c above)
d	87.5	Suggested solutions on better integration process
e	87.5	Recommended key areas on integration of both TB & HIV
f	37.5	Existence of a joint committee on TB & HIV/AIDS programmes
g	100	Highlighted important NGOs on TB & HIV/AIDS integration
h	62.5	Mentioned structures for TB & HIV/AIDS integration

**Narrative:**

All eight provinces indicated a need of TB and HIV/AIDS programmes integration. The responses tended to be influenced by departmental policies and structures. There was some evidence of collaboration with different NGOs and CBOs. Provincially 5/8 (62.5%) provinces reported that the two programmes are under different directorates such as PHC, CDC, HIV/AIDS and TB, although nationally they are under one Chief Directorate: TB/HIV/AIDS/STIs. 7/8 provinces suggested areas for integration to be: policy formulation, management with training of HCWs and strategic planning, Advocacy on World TB and AIDS days, affected clients counseling with home care, VCT plus support of HIV clients, HBC, AIDS education, Care and Support.

7/8 provinces (87.5%) suggested the following measures for better integration to be accomplished: have an integrated setting and joint planning with regular meetings on sharing responsibilities for care and support; release available funds for both programmes; have joint format on TB/HIV data collection; avail human resources to combat the dual of the epidemic in the next ten years; have one

coordinator for HIV/AIDS and a new organogram to combine the two programs; and appoint district coordinators for both TB and HIV/AIDS programmes.

7/8 provinces recommended the following areas for better integration of the two programmes: policy formulation, management and strategic planning; Advocacy on World TB and AIDS days; affected clients counseling with home care; VCT, HBC, AIDS education plus Care and Support. 5 provinces (62.5%) reported no existence of joint TB and HIV/AIDS committee at provincial level. All 8 provinces supported the concept of inviting or including NGOs in the integration process. Five of the eight provinces (62.5%) mentioned the following structures at regional and district levels addressing integration of TB and HIV/AIDS: District CDC managers, HIV/AIDS and TB forum and CBC coordinators.

**Table 8.2a Responses to the planning and finance component of the questionnaire**

- 
- a Only 1 of the eight provinces reported a joint budget for both programmes.
  - b Five out of 8 provinces (62.5%) of respondents did not give the size of budgets allocated to them in either programme while 3 (37.5%) estimated their budgets to be R250000 to R60 million for TB and R6 million for HIV/AIDS.
  - c Six of the 8 provinces (75%) reported having different TB/HIV/AIDS operational plans which included: HIV/AIDS/TB Care, VCT in TB hospitals, TB HCW trained in HIV diagnosis, Train HCWs on TB/HIV/DOts, HBC; advocacy on TB/HIV pilot sites; Counseling, Rapid HIV test in pilot districts, and Home Care; reduction of HIV infection, Condom distribution by TB NGOs. Two provinces (25%) have operational plans not directly related to TB and HIV/AIDS, which are: policy planning and service rendering; Health promotion and diet messages and regular meetings and posters.
  - d 6/8 (75%) provinces have seldom joint strategic and operational plans of TB and HIV/AIDS while 2 meet either once a year or not at all.
  - e 5/8 provinces (62.5%) address TB/HIV integration in some of their meetings while 37.5% don't address TB and HIV integration.
  - f 5/8 provinces address matters in relation to TB and HIV integration which are: VCT guidelines, training, HIV/TB districts; Need to meet the two programmes; Train counselors on VCT and TB/HIV, Team work and INH prophylaxis and full course treatment in co-infected clients.
-

**Table 8.2b Summary of responses to planning and finance component questionnaire with comments**

Question #:	Percentage (%) scored	Reported Comments
a	87.5	No joint budget available
b	62.5	No report on their budget size
c	75	Have different operational plans for each disease separately on TB and HIV
d	75	NO joint strategic and operational plans on both TB & HIV/AIDS
e	62.5	Mention TB and HIV integration in some of their meetings
f	62.5	Sometimes mention matters in relation to TB & HIV integration
g	62.5	As ( f ) above.

**Narrative:**

The results show that 7 out of eight provinces have no joint budget for both TB and HIV/AIDS programmes. This was also noted at the National Department, Chief Directorate of HIV/AIDS and TB. 62.5% of respondents did not indicate the amount allocated in their budgets. The remaining 3 provinces indicated their budgets to be between R250,000 to R60 million for TB and R6 million for HIV/AIDS. Six provinces (75%) reported having different operational plans per programme which includes: HIV/AIDS/TB Care, VCT in TB hospitals, TB HCW trained in HIV diagnosis, Train HCWs on TB/HIV/DOTS and HBC; Advocacy on TB/HIV pilot sites; Counseling and Rapid HIV test in pilot districts, and Condom distribution by TB NGOs. Six provinces of the eight that responded (75%) reported having joint strategic operational plans. TB and HIV/AIDS integration is addressed by 5/8 provinces (62.5%) in their routine meetings while 37.5% do not.

**Table 8.3a Responses to the advocacy component of the questionnaire**

- a Six of the eight responding provinces (75%) reported having a joint communication strategy for mass media on both TB and HIV/AIDS through radio and newspapers. The other 2 reported no joint communication strategy on the two programmes.
- b 7/8 provinces (87.5%) reported having activities addressed in World AIDS Day or World TB Day; these include: H/E, local activities and relationship of the two programmes. The eighth reported no activities.
- c 6/8 provinces (75%) reported that TB is being addressed in HIV/AIDS advocacy activities of Partnership Against AIDS such as: World AIDS Day, radio, pamphlet distribution and poster presentation. The other two reported no activities and no examples were provided.
- d Five of the 8 provinces (62.5%) address HIV integration in TB advocacy during: World TB Day activities by using posters and pamphlets, public awareness on HIV/AIDS/TB. Messages such as: TB is curable in HIV positive clients and TB is curable are delivered. The remaining 3 do not address TB/HIV integration during advocacy.
- e Six of 8 provinces (75%) reported availability of efforts made to involve people living with HIV who are on TB treatment or have been cured of TB to address stigma and ignorance in the community by using: support groups, committee from NGO and TB hospitals and posters.

**Table 8.3b Summary of responses to advocacy component questionnaire with comments**

Question #:	Percentage (%) scored	Reported Comments
a	75	Have joint communication strategy for mass media
b	87.5	Have joint activities in World AIDS and TB Days
c	75	Address TB in HIV/AIDS activities
d	62.5	Address HIV in TB advocacy
e	75	Address PLWA who are on TB treatment

**Narrative:**

Advocacy activities are high with 6 out of 8 provinces using mass media such as radio and newspapers in both programmes. Seven provinces (87.5%) reported that they address World AIDS and TB Days jointly especially for important topics such as stigma reduction and discrimination against people with HIV/AIDS. 75% of provinces reported addressing TB in HIV/AIDS advocacy activities in Partnership Against AIDS in World AIDS Day using radio, pamphlet distribution

and poster presentations. 25% promote condom use to TB patients. However, 2 of the eight provinces stated that they rarely addressed TB problems in their HIV/AIDS campaigns. Five of the eight provinces (62.5%) reported that they address HIV integration with TB during World TB Day. 75% respondents reported to have made efforts to involve PWAs in the integration process.

**Table 8.4a Responses to health education (patients/ community) component of the questionnaire:**

- 
- a All 8 provinces reported existence of various TB and HIV/AIDS programmes in their respective provinces. Each province has its own educational programme for TB and HIV patients that includes: district level for individuals and groups, information giving, involve health promoters as DOTS coordinators trained on TB/HIV, door to door campaign on TB/HIV/AIDS phase, Patient in TB hospital counselor, train DOTS supporters, Relationship of the two programmes, and awareness programmes in counseling.
  - b 7/8 provinces (87.5%) reported that TB patients are given health education on HIV/AIDS in a form of: talk posters such as TB is curable in HIV positive patients and a link between TB and HIV.
  - c Fifty percent of provinces reported offering condoms to TB patients and instruction on their use. 25% respondents don't issue condoms while the rest 25% were not sure if condoms are issued or not.
  - d 6/8 provinces (75%) reported that, their HIV/AIDS clients are educated about TB infection while 25% respondents reported that their clients are not given health education on TB.
- 

**Table 8.4b Summary of responses to health education (patients/ community) component questionnaire with comments:**

Question #:	Percentage (%) scored	Comments
a	100	No joint Health Education programmes reported
b	87.5	TB patients get Health Education on HIV/AIDS
c	50	Offer Condoms to TB patients
d	75	HIV patients educated on TB

**Narrative:**

All eight responding provinces have Health Education programmes on TB and HIV/AIDS based on the provincial requirements up to the district level. Seven of the eight provinces (87.5%) have health education programmes on TB directed to HIV/AIDS positive clients. Only half the provinces reported HIV-related programmes directed to TB patients, such as the offering of condoms and training on how to use them. However, 6 of the provinces offer education to HIV/AIDS clients on the signs and symptoms of TB and advise them to report to health facilities once they note any symptoms. There is insufficient health education training on both TB and HIV/AIDS programmes at provincial and national levels except in the four pilot districts. It was reported that Health education materials used include; posters, talk, newspapers etc

**Table 8.5a Responses to policy component of the questionnaire:**

- 
- a Five of the eight provinces (62.5%) reported the existence of policy guideline on TB/HIV integration or management for both TB/HIV including at national level. The other 3 reported non-availability of policy guidelines for both TB and HIV/AIDS.
  - b Two of the 8 provinces had guidelines available, while 5 (62.5%) reported that there is no specific policy which specifies that TB patients should routinely be offered HIV counseling and testing and 1 did not know.
  - c Half the provinces reported having policies that HIV-positive clients should routinely be counseled on the symptoms of TB and encouraged to seek care if they develop TB symptoms. Three had no policy guidelines and 1 did not know.
  - d Four of the 8 provinces (50%) reported that HIV/AIDS/STDS and TB programmes consult each other on policy and guideline formulation. Three reported no consultation between the two programmes while 1 did not know.
  - e Six out of eight provinces (75%) reported that there was a policy for follows up of TB/HIV/AIDS patients after discharge from hospital. One reported no policy while 1 did not know.
-

**Table 8.5b Summary of responses to policy component questionnaire with comments:**

Question #:	Percentage (%) scored	Reported Comments
a	62.5	Have policy guidelines on TB and HIV integration
b	62.5	NO policy available for TB patients having routine VCT
c	50	Policy available for HIV pts to be counseled on TB symptoms
d	50	HIV and TB programmes consult each other on policy guidelines
e	75	Have policy on follow-up of discharged pts on both TB & HIV diseases

**Narrative:**

It is interesting to note that only 5/8 provinces (62.5%) reported the availability of policy guidelines on TB and HIV/AIDS management at provincial level. Those that did have such guidelines available, however, did not specify that TB patients should be routinely offered HIV counseling and testing. Seventy-five percent of provinces reported that both TB and HIV/AIDS policies provide a section on the follow up of TB and HIV/AIDS patients after discharge from hospital but did not comment on the referral system for these patients. Only 50% of provinces consult each other on policy guideline matters and only 50% had a policy on HIV patients to be counseled for signs and symptoms of TB. The National Department of Health has provided guidelines on AIDS Home Based Care which includes: DOTS, National TB/HIV Clinical guidelines and a manual for HIV/AIDS on Community Based DOTS which are currently being distributed to the provinces, in government and in Non-Governmental Organization hospitals.

**Table 8.6a Responses to the health care workers training component of the questionnaire:**

- a Seven of the 8 provinces (87.5%) reported joint training programmes for health care workers to obtain skills in identifying and managing TB and other opportunistic infections. Programmes mentioned by respondents which vary from each other includes: formal training, decentralized training plus HIV done at hospitals to doctors and nurses, Primary Health care, Ongoing training at district level, VCT for nurses, case detection, diagnosis, management, and follow up services and in pilot districts, HBC plus DOTS supporters. Twelve and half percent (two out of 16) reported don't know.
- b Five of 8 provinces (62.5%) reported to have their own additional training programmes as follows: HBC and counselor training, VCT and DOTS, palliative care for HCW at TB hospitals, counselors on TB/HIV/AIDS, and management of opportunistic infections. Three provinces (37.5%) reported no training programme.
- c All but 1 province (87.5%) reported having joint training manuals (materials) addressing both TB and HIV available in their respective provinces which include: National TB training manuals, pamphlets, Draft manual on HBC, Adult and Child HIV/AIDS Care, TB guidelines, CHWs and HIV/AIDS Communicator manual, National information on collaboration strategy and manuals for DOTS. The remaining province did not mention any training manuals.
- d Seven of the eight provinces (87.5%) reported that DOTS supporters are trained in HIV prevention in their provinces. The remaining province did not know.
- e Half the provinces reported to be training their DOTS supporters on HIV/AIDS and home based care services.
- f All but 1 of the provinces reported that AIDS home-based careers are trained on DOTS and early diagnosis of TB while the other stated there was no such training going on.

**Table 8.6b Summary of responses to health care workers (HCWs) training component questionnaire with comments:**

Question #:	Percentage (%) scored	Reported Comments
a	87.5	Have joint training programme on HCWs to manage TB and Opportunistic infections (OIs).
b	62.5	Have own additional training programmes
c	87.5	Have joint training manuals on both TB and HIV/AIDS
d	87.5	DOTS supporters are trained on HIV prevention
e	50	Train DOTS supporters in HIV & HBC , 50% no training
f	87.5	HIV/AIDS HBC trained in DOTS & diagnosis of TB



**Narrative:**

Fourteen out of 16 (87.5%) respondents reported to have joint training programmes for Health Care Workers based on the provincial requirements on skills but with emphasis on DOTS supporters and CHBC. It also includes TB and HIV curricula for traditional healers and counselors in life skills development, early diagnosis of TB and Voluntary Counseling and Testing (VCT). However 87.5% of respondents reported that DOTS supporters are trained on HIV/AIDS prevention while 50% are trained on HBC services. 87.5% reported to train Home Based Careers on DOTS and early diagnosis of TB while 87.5% reported to be using joint manuals in Home Care Training which include: National TB training manuals, Draft manual on HBC, Adult and Child HIV/AIDS Care, TB guidelines, CHWs and HIV/AIDS Communicator manual, National information on collaboration strategy and manuals for DOTS. It is encouraging that 87.5% provinces reported to train AIDS HBC in DOTS and diagnosis of TB. According to the provincial responses, in 50% of provinces DOTS supporters are trained in HIV and HBC and in 50% of provinces HIV careers are trained in DOTS supporters.

**Table 8.7a Responses to service provision component of the questionnaire.**

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a	Six of eight provinces (75%) reported addressing both TB and HIV/AIDS during their support supervisory visits at local and district level. Two provinces made no comments.
b	Four of the eight responding provinces (50%) reported that they offer HIV counseling and testing to all TB patients in their districts (SANTA hospitals included). The other 4 reported that this is done partially only, depending on availability of resources.
c	Half the provinces reported that their HIV counselors provide TB education as part of post-test counseling.
d	All provinces reported that efforts have been made to prevent and treat HIV-related opportunistic infections in HIV-positive TB patients by: TB treatment and Health education, Draft guidelines for TB and HIV/AIDS, improvement of treatment in all hospitals, use of practical guidelines and in other areas recently doctors and nurses started using guidelines.
e	Seven of eight provinces (87.5%) have already proposed creation of TB/HIV Training Districts besides the four national TB/HIV pilot sites.

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**Table 8.7b Summary of responses to service provision component questionnaire with comments.**

Question #:	Percentage (%) scored	Reported Comments
a	75	Address both TB & HIV/AIDS in their supervisory visits
b	50	Offer VCT to TB patients, 50% depends on budget availability
c	50	HIV counselor provide TB education,
d	100	Have efforts on treatment & prevention of OIs, none jointly
e	87.5	Have proposed TB & HIV pilot sites.

**Narrative:**

All respondents are in possession of draft guidelines for the management and prevention of opportunistic infection in HIV and TB patients in hospitals. Seven provinces reported to have already proposed Provincial TB/HIV training Districts (excluding the four national TB/HIV pilot districts in KwaZulu-Natal, Limpopo, Western Cape and Eastern Cape). 75% respondents reported to address both TB and HIV/AIDS during their supervisory visits at local districts. Only 4/8 provinces (50%) reported offering HIV counseling and testing to TB patients routinely; the others reported that it depends on the availability of resources even in post counseling activities. It is also noted that in half the provinces it is practice for HIV Counselors to provide TB education; the remainder reported no post-test counseling.

**Table 8.8a Responses to the social support component of the questionnaire:**

- 
- a All provinces indicated having some social support services for both TB and HIV/AIDS based on provincial requirements. These included: NGOs, SANTA, CBOs, Department of Social Welfare, Support groups, Social Grants for HIV/AIDS, AIDS supporters, Poverty Alleviation Funds, TB Support Grants, AOS Action, KAMSA
  - b Five of the eight provinces (62.5%) reported that there are no efforts currently made to involve both TB and HIV/AIDS patients in forming support groups. Three provinces reported having made efforts to involve TB and HIV/AIDS in forming support groups.
  - c 4/8 provinces (50%) indicated having supplementary nutritional programmes to TB/HIV patients in their provinces which includes: PEM schemes, Food parcels in East Rand and Self Help Projects by the Nutrition sub-Directorate.
- 

**Table 8.8b Summary of responses to social support component questionnaire with comments:**

Question #:	Percentage (%) scored	Reported Comments
a	100	Have province specific social support services for both TB & HIV/AIDS pts.
b	62.5	No efforts on forming Social Support groups for HIV & TB pts.
c	50	Have supplementary Nutritional programmes in both TB & HIV.

**Narrative:**

All respondents reported to having social support services for both TB and HIV/AIDS programmes based on provincial requirements as determined by the Department of Social Development and some NGOs. Only 50% respondents reported to have Nutritional Supplementary programmes both for TB and HIV/AIDS clients mostly supported by private NGOs and religious organizations. Programmes mentioned include: Protein Energy Malnutrition Food parcels and Self Help. No efforts were reported on establishing TB and HIV/AIDS support groups from 5/8 provinces while 1 of the provinces had support groups for HIV/AIDS alone.

**Table 8.9a Responses to the community involvement component**

- 
- a 6/8 provinces (75%) reported that their DOTS treatment supporters provide health education on HIV prevention within the community, while 2/8 reported that their DOTS supporters currently play no role in HIV/AIDS.
  - b Half the provinces (50%) reported that their DOTS treatment supporters are involved in condom distribution to the community, although the other 4 provinces stated that they were not sure whether their DOTS treatment supporters were involved in condom distribution or not.
  - c 6/8 provinces (75%) reported that their HIV/AIDS home-based care givers in their provinces do provide directly observed TB treatment (DOTS), while the other 2 were unsure about the situation.
  - d 4/8 provinces (50%) reported that DOTS treatment supporters are given incentives in-terms of: Health Education, Media training, Praising certificates of recognition, Rotary support, Food, T-shirts, Bags and Treatment boxes. The rest 50% reported no incentives are given to DOTS supporters.
  - e Three quarters (75%) of provinces reported that HIV/AIDS home-based careers are given incentive in-terms of: money, outsourcing to NGOs, and monitoring skills.
- 

**Table 8.9b Summary of responses to community involvement component questionnaire with comments:**

Question #:	Percentage (%) scored	Reported Comments
a	75	DOTS treatments supporters provide H/E on HIV prevention
b	50	DOTS treatments supporters distribute condoms, 50% NOT sure
c	75	HBC provide DOTS services
d	50	DOTS treatments supporters are provided with incentives, 50% NO incentives provided
e	75	HBC service providers are given incentives, 25% NO incentives

**Narrative:**

Seventy-five percent of provinces reported that DOTS treatment supporters provide health education on HIV prevention within the community, while 50% reported their DOTS treatment supporters are involved in condom distribution to the community. However, half the provinces stated that they were not sure whether their DOTS treatment supporters were involved in condom distribution or not. ¾ of provinces reported that HIV/AIDS Home Based Careers provide DOTS. Incentives in terms of: Health education, Media training, Praising certificates of

recognition, Rotary support, Food, T-shirts, Bags and Treatment boxes was reported to be provided to DOTS treatment supporters by 4/8 provinces while the rest reported no incentives. It was also noted that incentive in terms of: money, outsourcing to NGOs, and monitoring skills was provided to HIV/AIDS Home Based Careers as reported by 6/8 provinces.

**Table 8.10a Responses to the operational research component of the questionnaire.**

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- a 6 of the 8 provinces (75%) reported that they were undertaking operational research. This included: TB/HIV pilot districts, MRC survey on smear negative, culture positive TB patients and HIV incidence in TB patients, MDR-TB, DOTS, and Monitoring Incidence of HIV in TB cases. 2 of the 8 reported no current operational research activities in TB/HIV/AIDS in their respective provinces.
  - b 7/8 (87.5%) provinces reported having no joint planned operational research in addressing TB and HIV issues. The other province described research into DOTS compliance for TB in HIV-infected patients.
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**Table 8.10b Summary of responses to operational research component questionnaire with comments:**

Question #:	Percentage (%) scored	Reported Comments
a	75	Have on-going operational research but programme specific
b	12.5	Joint planned operational research involving both TB & HIV/AIDS programmes

**Narrative:**

Operational research was reported by 7 of the 8 provinces, and in only 1 of these provinces was there a project involving both programmes: the remainder were programme-specific.

**Table 8.11a Responses to monitoring and evaluation component questionnaire**

- a Five out of the 8 provinces (62.5%) reported that they had no joint monitoring and evaluation activities. Three reported programme specific activities including: quarterly reports on TB and HIV/AIDS programmes and Electronic TB register not including HIV/AIDS.

**Table 8.11b Summary of responses to monitoring and evaluation component questionnaire with comments:**

Question #:	Percentage (%) scored	Comments
a	0%	Joint efforts on Monitoring & Evaluation activities on both TB & HIV/AIDS programmes.

**Narrative:**

Currently there are no joint monitoring and evaluation activities in any of the eight responding provinces. Although 3 provinces mentioned their TB programme-specific activities, the TB registers are introduced and used in all provinces. It is likely that the term “monitoring and evaluation” was not well-understood by the respondents.

## 9. DISCUSSION OF RESULTS:

The twin epidemics of HIV and TB are among South Africa's most pressing public health problems. The review of the literature demonstrates a number of very compelling reasons for the integration of the HIV and TB control programmes at all levels of the health system. This study has shown that, based on the responses received, all of the 8 responding provinces can give examples of integrated activities. They still, however, at the time of the study, are more focused on the individual programmes than on integrated activities and there is much room for improvement.

It would have been more useful to indicate what proportion of the national TB and HIV cases are covered by the positive and the negative responses, since the provinces vary considerably in terms of both population size and incidence rates for TB and prevalence rates for HIV. However the provinces were given the assurance that they would not be singled out for poor practices identified by their responses to the questionnaire and so this has not been done.

The question is what can be done to move from the rhetoric of integrated management to improved health outcomes for South Africa's citizens. It might be argued that the first step is to ensure that policy-makers and programme managers know and appreciate the advantages of integration. Unfortunately this question was not the focus of this study. However, the fact that the study uncovered numerous examples of informal collaboration in the absence, very often, of formal structures and budgets aimed at promoting integration, suggests that there is a widespread recognition by service providers of the need for and advantages of integration.

Secondly, once the advantages are known and believed in, steps need to be identified that will, if implemented, lead to this desired integration. With regard to the responses to the questionnaires, a number of points need to be made. These are as follows:

## **Management component**

According to the World Health Organization (WHO) recommendations, the Chief Directorate of HIV/AIDS/STIs/TB programme should have a joint committee and an organogram for both TB and HIV/AIDS activities in each province. This should be adopted and known at all levels for an integration implementation process to be effective. Clear areas of integration should be set, distributed and put in use by all stakeholders such as: NGOs, CBOs, etc. Training should be conducted with emphasis on the importance of integrating the two programs, as these diseases are synergistic. Lessons learnt from the TB/HIV integration pilot sites should form a foundation or a cornerstone for improving integration of the two programmes.

In only 3/8 of the provinces the two programmes are under same directorate with a common organogram. Responses also show that there is a good knowledge on the importance of integrating the two programmes. Responses also indicated that there are provincial variations based on provincial priorities. Further knowledge of integration was shown when 5 of the 8 provinces indicated that inclusion of other stakeholders like NGOs, religious organizations etc was vital in the fight against these diseases and who also wanted structures at regional and district levels to be integrated.

It is also noted that there is no joint committee at provincial level for 5/8 provinces for planning and monitoring activities of these two programmes despite being under one Chief Directorate of HIV/AIDS/STIs/TB nationally.

It is important that the Chief Directorate HIV/AIDS/STIs and TB develops a common organogram to be followed by all provinces with a clear set up criteria on the integration of the two programmes. All provinces have demonstrated clearly that there is a need of integrating the two programmes except they lack coordination from the national level to an extent that each province suggests its own priorities and measures for the integration process. The National Department of Health should review all suggested and recommended areas of integration and prioritize which ones are more important based on the



departmental policies and structures for better monitoring and evaluation of the integration process.

The Department of Health has four pilot districts of TB and HIV integration within the country. These districts were created as learning grounds for better improvement of integration, also for training of provincial officials. The lessons from these pilot districts should be used to reinforce the improvement of the integration process of these programmes. The Department of Health nationally should encourage the integration of the TB and HIV/AIDS programme's activities at provincial and district levels as it has done at the national level. A joint committee should be formed to follow-up on the process of integration and planned monitoring and evaluation of the programme's activities.

### **Planning and Finance Component**

The literature shows there is a need to strengthen joint strategic and operational planning of TB and HIV/AIDS activities at all levels. The importance of TB and HIV/AIDS integration should be addressed in all TB and HIV/AIDS meetings and workshops within government and NGO health and non-health related functions. Governments departments should set a timeframe to accomplish the TB/HIV/AIDS programmes integration for a combined effort to fight these diseases. The programmes should be adequately funded. If TB and HIV programmes have separate budgets, the integration process becomes difficult, because the managers are accountable for their respective programme budgets. With programme integration tasks and expenses become common and it thus makes sense to have a unified budget.

It is important to mention that good planning; a thorough work-plan, time frame, capable human resource and proper budget management are key issues in any project implementation. For this reason it was important to understand the planning and finance activities in the whole process of programme integration. The results indicate that only 1 of the 8 responding provinces has a partially unified budget for joint activities. This makes it difficult to motivate staff to carry

out joint activities. If a budget were to be set aside specifically for defined joint activities then these activities might be more likely to take place.

It was also noted that 62.5% respondents preferred not to give details about their budgets. This suggests that there might be a degree of sensitivity around the budgets. Alternatively, the respondents may have found the question difficult to answer due to lack of expertise or awareness of what their budget allocations are. If the latter is true, then it might be important that officials at this level receive training in budgeting so that they may manage their budgets with greater insight.

75% of the provinces did not have joint operational plans, or joint strategic planning. This is related to the problem of no joint budgets since strategic and operational plans are usually devised together with budgets. Another, more constructive approach to strategic and operational planning is to design the budgets around the strategic and operational goals. This approach will be helpful since it will result in joint budgeting. This will remove a major barrier to integration and will provide an incentive for greater integration in practice.

Five out of the eight provinces reported that they address TB and HIV/AIDS programmes integration in their provincial meetings, but the examples were not based on WHO recommended components. For example, these joint discussions did not involve strategic planning and budgeting for the two programmes since the Department of Health and the donors have separate allocations for the two programmes. This again is a potential barrier to improved integration. Unfortunately, donors may be more interested in one or other of the two programmes and may require their funds be spent in a non-integrated way. One solution to this problem might be for the Department of Health to negotiate with donors in favour of moving to a “basket” approach to donor funds. Such negotiations have been successful elsewhere in the world, indicating that donor agencies are not averse to this approach.

WHO has identified these eleven components for the evaluation of an integration of TB and HIV control programmes. These components should be shared with all provincial departments of health to be addressed in their meetings and assist

them with proper integration process planning. Knowledge about the need to integrate HIV/AIDS and TB control programmes is available within the provinces; but the integration process needs to be supported by strategic budgeting and planning at provincial and national levels

### **Advocacy component**

This is one area where programme integration appears to have proceeded very well. A joint advocacy strategy is important in demonstrating a combined effort on the two programmes to fight these synergistic diseases. There is a need for improving advocacy messages to address both TB and HIV/AIDS problems in all activities. Current existing linkages should be strengthened especially concerning the treatment and prevention of opportunistic infections. Stigma and discrimination should be addressed by forming a joint platform of openness on both diseases. The HIV/AIDS-infected and -affected persons should be encouraged to be open and discuss their conditions for better awareness creation in communities, since communities are the source of support for those who are infected. Government departments should address stigma and discrimination as legal and human right for any person. The study shows that 6 out of 8 (75%) provinces manifest combined efforts in addressing these diseases, as demonstrated on the World TB and HIV/AIDS Days celebrations.

The provinces show an understanding of the meaning of integration by adopting a joint communication strategy and mass media on both programmes (75% of provinces). This is also demonstrated through a coordinated effort during the World TB and HIV/AIDS Days by 87.5% of provinces. In addition, as shown in the results, 5 out of the 8 provinces have a joint communication strategy as demonstrated by use of joint posters, radio communication, newspaper publicity etc. Six out of the 8 provinces have also involved PLWAs as advocates for better TB treatment completion, in order to emphasize the inter-relatedness in minimization of stigma.

Since the level of integration around advocacy is good, there is a need to sustain joint advocacy messages to address both TB and HIV/AIDS problems in all activities, and perhaps to use this example of good integration as a model for improving integration of other components.

Existing linkages should be strengthened especially with regard on addressing the opportunistic infections treatment and prevention. Stigma and discrimination should form a platform of openness on both diseases. The HIV/AIDS infected and affected persons should be encouraged to be open and discuss their disease conditions for awareness creation within the communities. The government should address stigma and discrimination on legal and human rights level. The level of stigma needs to be evaluated in an on-going process in order to identify any gaps that need to be further addressed.

#### **Health education (patient/community) component**

The results show that Health Education programmes are available for both diseases in all 8 responding provinces. However, the responses differ in terms of content and priority by province. The provincial priorities determine which are the priority areas for the integration process for the two programmes. These priorities provide a possible structural barrier for the implementation of better integration of this component. Priorities are national and provincial strategic issues that need to be addressed at ministerial level.

The National and Provincial Departments of Health need to design Health Education materials and messages to be used nationally in training and advocacy. They may be assisted in these endeavors by the private and NGO sectors. Knowledge and experience gained from research and especially from the TB/HIV pilot sites should be implemented nation-wide for improvement of service delivery in both programmes. Emphasis on prevention of TB and HIV/AIDS should form the key message to be presented and delivered to the community.

Of note, there were two provinces where programme integration is prioritized, but in spite of this, neither demonstrates a good level of integration in their health educational programmes. For example, neither of these two provinces provided information about condom use to their TB patients, whereas 4 (50%) of the remaining 8 provinces did so. This finding suggests that prioritization of integration efforts alone will not achieve good implementation of Health Education programme nationally. Interestingly 6/8 provinces had an espoused policy to educate HIV-infected persons on TB related problems, which is a good sign of integration.

One possible solution to this problem is for the National Health Department to produce a range of attractive and effective training materials/manuals that require an integrated approach if they are to be used.

### **Policy component**

The responses in this component are difficult to interpret since while 5 out of 8 (62.5%) provinces report that there is availability of TB and HIV policy guidelines, which include a guideline for the counseling and HIV testing of TB patients. 5 out of 8 (62.5%) reported that the policy does not specify that TB patients should be counseled and tested for HIV. In some cases this was because the guidelines have not yet been distributed to them, and in 50% of the provinces the guidelines were available, but the policy concerning the counseling of TB patients was not known. There is a need of a clear understanding of the policy guidelines for both diseases.

A combined policy guideline on TB and HIV/AIDS management needs to be developed, distributed, and people, especially in management positions, trained and evaluated on its use. The developed clinical guidelines, manuals and policies should be made available to all users nationally. The National Department of Health have guidelines on AIDS Home Based Care which include: DOTS, National TB/HIV Clinical guidelines and A Manual for HIV/AIDS on Community Home Based Care DOTS which are currently being distributed to all provinces in

government and NGO hospitals. Monitoring and evaluation on how well it is understood as well as how well it is implemented, should be done regularly at all levels. A linkage of activities is important and should be spelled-out in policy guidelines and manuals for better follow up and implementation. Health workers should be encouraged to comment on the policy gaps noted and to make recommendations for the improvement of the services.

In order to aid further integration, training should no longer be provided in a separate programme-specific way, but should present and emphasize the integrated approach wherever possible. Existing, programme-specific, training materials need to be re-designed in this integrated format.

### **Health care workers training component**

It is interesting to note that all Health care workers are exposed to training in both diseases in their provinces, but how and to what extent poses a question that this survey was not designed to address. The responses show that 7/8 provinces have joint national training, and training manuals, while 5/8 have additional training programmes that are province-specific. This is a good response, and, like the response to the advocacy component, provides a basis that can be used as a model and for extension into other areas where the response has not been so encouraging. Of note, in 7/8 provinces DOTS supporters are trained on HIV/AIDS Home Based Care while HBC providers are trained in DOTS and early diagnosis of TB. However, only in 50% of provinces are DOTS supporters trained on HIV/AIDS Home Based Care services. Since DOTS supporters are in daily contact with their clients during the 6-8 months of treatment, this represents an opportunity that needs to be taken for relatively cost-effective improvement in the quality of HBC.

It is important to note that most of the HBC givers and DOTS supporters are volunteers. Therefore, it is necessary to ensure that they, too, are trained in an integrated approach, since they will have had limited formal training along these lines. In integrated programmes this is easier because both programmes share

their experiences with each other from planning activities to its implementation and finally monitoring the programme as a whole.

### **Service provision component**

Once TB and HIV integration is implemented, all services will be jointly planned and service provision to the rural areas available. Provincial managers will be required to monitor supervisory visits. Currently supervisory visits in most provinces are more programme-specific. It is encouraging to note that, despite some small differences in the responses, all provinces (100%) reported that they are concerned with opportunistic infections management. Seven of the 8 provinces reported that they had established TB and HIV training districts but the question is to what extent are they really training people from both programmes. Again, this survey was not designed to answer this question.

VCT training was reported by only 50% provinces but they also commented that it depends on the availability of the resources. This comment applied to both programmes. The VCT services need to be strengthened in all provinces up to the community level. HIV clients should be monitored for development of TB and TB clients should be provided with VCT and preventive services (for example condoms or chemoprophylaxis if applicable). Commitment of supervisors and coordinators to addressing both TB and HIV/AIDS preventive strategies should form part of their supervisory monitoring indicators. In this study 75% of respondents reported that they addressed both TB and HIV/AIDS in their supervisory visits, and this will strengthen the integration process.

Provincial TB and HIV/AIDS supervisors should be committed in addressing, monitoring and educating the district health care workers in the integration process of TB and HIV/AIDS programmes. Improvement of services at all levels is a priority and should be encouraged. VCT, TB treatment completion, follow-up of defaulters, referral system and the establishment of monitoring and evaluation indicators should be prioritized. Health Service providers may need training in the care and basic management of both diseases.

### **Social support component**

Social support services are reported from all provinces. However, they are province-specific and are supplied mostly by NGOs. It is very important to emphasize that nutrition is the key to management of any disease and more important in HIV/AIDS and TB. In these diseases there is often loss of appetite. Food provision is therefore an important entity of management. It is noted that there are social support groups in all provinces, but whether and to what extent their programmes comply with national guidelines needs to be evaluated. The provinces themselves report formal public sector nutritional support programmes in only 4/8 cases, so this is an area where those provinces that do not offer such programmes could be encouraged to do so, especially in an integrated manner.

It is also noted that, in 5/8 provinces there are no efforts reported to form combined, integrated, TB and HIV/AIDS support groups for the affected, infected patients and relatives. Everyone is expected to be knowledgeable on the importance of nutrition for these needy patients especially in these two diseases.

More emphasis should be put on Nutritional support for TB/HIV/AIDS clients. Since the financing of such programmes may come from outside government, training of Health Care Workers on handling support grants for PLWHA and Orphans should be introduced in all provinces, especially if these are to be integrated programmes with the TB programme. Nutritional support programmes are to be encouraged and supported for both TB and HIV/AIDS clients. The community should be encouraged to support PLWHA and TB patients morally, materially, socially and mentally since this will reduce stigma and discrimination of the infected and affected. The department of Social Development should set up criteria and guidelines as to who should benefit from the social support available from the government or NGOs.



### **Community involvement component**

A clear policy in terms of incentive provision for all volunteers and NGOs nationally is required and is very important. Volunteers should be trained and exposed to support and care for TB and HIV/AIDS clients. It should be emphasized during training that these two diseases are synergistic, and that prevention, care and support form part of their management. Communities should be encouraged to understand the means of disease infection, spreading, prevention and treatment principles.

Both classes of treatment supporters (DOTS and HBC providers) play a very important role within the society for care of the TB and HIV patients. They all play a major role in care of orphans, the affected families and critically ill patients. They should all be taught preventive measures in both diseases and be given protective materials. Currently only half the provinces provide incentives for the DOTS supervisors, and 6/8 for the HBC givers.

It should be known that most of these supporters are volunteers as such they should be treated with due respect and care. Motivation plays a major role in any society. Either the national or the provincial government should introduce measures to improve the level of incentives offered to these volunteer care-givers. The current discrepancies in what is offered by different provinces might result in demoralization of care-givers who do not receive incentives, or who are offered lesser incentives, so a more uniform approach, guided by national policy, might be preferable. Such a national policy would also help to institutionalize the incentives and provide greater certainty for the recipients.

### **Operational research component**

Six out of 8 provinces reported to have some operational research on the both programmes, but this was invariably not integrated in approach and remains programme-specific. It is good to emphasize here that research is an important

tool and source of data collection and analysis and interpretation. Future planning of activities will be based on availability of information collected. Research topics mentioned by respondents in this study do not cover any of the eleven TB/HIV WHO recommended integration points. It was also noted that there is no joint planning of operational research in 7/8 provinces, and no overall coordination between provinces. A focus framework needs to be developed on both programmes for the improvement of integration.

### **Monitoring and evaluation**

TB and HIV integration in all provinces is noted to be at an early stage and is more based on the requirements or priorities of the province (province-specific priorities). For this reason it is not easy to have a unified monitoring and evaluation tool or indicators for both programmes.

Monitoring and evaluation assists in understanding the progress of the programmes and also identifies the gaps to be improved upon. In this study 5/8 provinces reported to have no joint monitoring and evaluation effort or even a plan to do so. The only joint effort reported so far is the sharing of quarterly reports on TB and HIV/AIDS, collected separately with each programme, by 3 out of the 8 provinces.

However one needs to interpret these findings with caution since most provinces did not mention the use of TB registers and the quarterly reporting system for TB that is known to be established in all provinces, so it is possible that the concept of “monitoring and evaluation” was not well understood by many respondents. This is in itself a problem with ramifications far beyond the integration of the two programmes. There needs to a culture of “M&E” and the integration of the two programmes would be just one aspect to this. For better running of the joint TB and HIV/AIDS programmes, the National and Provincial Departments of Health are advised to design a strategic and operational implementation plan with indicators for joint monitoring and evaluation in their five year national plan.

## 10. CONCLUSIONS

At the time that this survey was carried out there was evidence of a substantial degree of programme integration for the two programmes in question, with some serious gaps however, and many opportunities for improvement.

On all eleven WHO recommended integration components assessed, the level of integration was good (50 to 87.5%, and some measures at 100%).

At management level, the integration process is good and well understood both provincially and nationally. The respondents highlighted hindrances and also offered possible solutions. The major weaknesses noted in this component are that the two programmes are under separate directorates, have no joint committee and the integration components are province-specific plus also not WHO recommended. It is therefore recommended that the National Department of Health establishes uniform integration components (WHO) recommended, encourages joint committees for the two programmes and probably have a coordinator at the Provincial Departments of Health for monitoring of the integration process.

Planning and finance component is very weak on integration from national to provincial levels. Both programmes tend to have no joint strategic operational plans or budget, although matters of TB and HIV integration are mentioned in some administrative meetings. The provision of a budget for combined and integrated activities is a major recommendation that will help to strengthen the integration.

Advocacy is well developed along integrated lines and these activities should be sustained in the future. It is also worth investigating why these activities are so much better integrated than some others, since this may give ideas about how to better integrate all the areas of concern.

There are no joint health education programmes for both TB and HIV/AIDS, but clients are educated on both diseases by separate disease-specific programmes. This sends out mixed messages and it is recommended that training materials be redesigned so as to make separate programme-specific training impossible.

Condom distribution to TB clients is only practiced in 4/8 provinces, an area that can definitely be improved upon, and should. VCT should be made available to all TB clients.

Policy guideline need to be available in all provinces and districts: managers and care givers need to be trained on these as well as being evaluated for their understanding and ability to implement the policies.

Training of volunteers needs to become standardized along integrated lines. Suitable training materials should be provided by the National Health Department. In addition, the incentives offered to volunteers need to become institutionalised by means of a national policy.

Service provision integration can be improved through the combined supervision of activities by the same supervisors, combined data collection and reporting, and combined meetings to review progress on both aspects. VCT protocols must address both conditions.

Social support services are widely available but not standardized and are delivered in a programme-specific manner. Standardization can be promoted by the provision of national guidelines that address the provision and promotion of social support systems in an integrated context. The application to nutrition and social support programmes are of great importance. There should be a working group consisting of representatives from both the Ministry of Social Welfare and the Ministry of Health to ensure that this is done.

The operational research component is very weak with no planned research agenda in nearly all provinces. The Ministry of Health needs to establish an agenda for operational research and then fund the necessary research either through its own agencies or through sub-contracting to operational researchers outside such as the MRC or the Universities. Care givers, policy makers, NGOs, as well as PLWH and TB patients should participate in defining the agenda according to priority need areas. Special emphasis and preference should be placed on operational research from a programme integration point of view.

Monitoring and evaluation activities probably need to be planned within the broader framework of introducing and developing effective M&E activities into the health system in general. In particular it is the managers and care givers who will often carry out these activities rather than outside agencies, and so short training courses will need to be developed and delivered to these people. Indicators will need to be developed as well as appropriate tools for the collection of data and its analysis. These indicators must relate directly to the published strategic goals and objectives of the Department of Health.

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## Appendix I

### **QUESTIONNAIRE:**

#### **HIVAIDS AND TB INTEGRATION/ COLLABORATION STUDY**

**Goal:**

**Describe the TB and HIV/AIDS/STI Programmes services integration / collaboration at provincial and national levels in the Republic of South Africa January – December 2000.**

In order to determine the level of TB/HIV collaboration in all provinces I am conducting this study with Provincial Co-ordinators (TB and HIV/AIDS Programmes) and requesting that you complete this questionnaire. Any questions or queries must be submitted to Dr Francis Hyera with the School of Health Systems and Public Health – University of Pretoria: Telephone numbers: (012) 841 3240 or 072 1798 414; Fax number (012) 841 3328. Please fax the completed questionnaire.

***Dr Francis Hyera***

**(012) 841 3240 or 072 1798 414; Fax number (012) 841 3328**

## **Questionnaire:**

### **i. Management**

- a) Please provide an organogram of where the HIV/AIDS/STD and the Tuberculosis programmes are situated in your Department  
.....  
.....  
.....
- b) In what ways are TB and HIV/AIDS/STDS programmes collaborating now?  
.....  
.....
- c) What problems are you facing with TB/HIV collaboration?  
.....  
.....
- d) Do you have any suggestions on solving these problems?  
.....  
.....
- e) What do you think should be the key areas for TB/HIV collaboration?  
.....  
.....
- f) Is there any committee dealing with TB/HIV integration activities within your province?  
.....  
.....
- g) Which Non-Governmental Organisations or Community Based Organisations are important in the TB/HIV collaboration in your province?  
.....  
.....
- h) What structures exist at regional and district levels to address TB/HIV collaboration?  
.....  
.....

### **ii. Planning and Finance**

- a) Is there any budget for combined TB/HIV activities and who controls it?  
.....
- b) If yes, how much is allocated?  
.....
- c) What TB/HIV control activities are in your current operational plan?  
.....  
.....
- d) How often do you meet for joint strategic and operational planning of TB and HIV/AIDS/STD activities?  
.....

- e) How often do you usually meet for other reasons than for strategic/operational planning?  
.....
- f) Mention issues, which you usually address in your meetings.  
.....  
.....

**iii) Advocacy.**

- a) Is there any joint communication strategy for mass media on both TB and HIV/AIDS?  
.....
- b) Are there any collaboration activities addressed in World AIDS Day or World TB Day?  
.....
- c) Is TB addressed in HIV/AIDS advocacy activities of the Partnership Against AIDS? .....  
Provide examples...  
.....  
.....
- d) Is TB/HIV addressed in TB advocacy activities?  
.....  
Provide examples  
.....  
.....
- e) Are there any effort made to involve people living with HIV who are on TB treatment or have been cured of TB to address stigma and ignorance in the community?  
.....  
.....

**iv) Health education (patients/community)**

- a) What educational programmes exist for TB/HIV patients?  
.....  
.....
- b) Are TB patients given health education on HIV?  
.....  
If so what information?  
.....
- c) Are TB patients offered condoms and taught how to use them?  
.....
- d) Are HIV-positive clients educated about TB?  
.....  
If so how?  
.....

**v) Policy**

- a) Is there any policy of TB/HIV collaboration or management of both TB/HIV?  
.....
- b) Is there a policy that specifies that TB patients should routinely be offered HIV counselling and testing?  
.....
- c) Is there a policy that HIV-positive clients should routinely be counselled on the symptoms of TB and encouraged to seek care if they develop TB symptoms?  
.....
- d) Do the HIV/AIDS/STDS and TB programmes consult each other on policy and guidelines formulation for both TB and HIV/AIDS?  
.....
- e) Is there any policy for follow up of TB/HIV/AIDS patients after discharge from hospital?  
.....

**vi) Training - (Health Care Workers)**

- a) Mention any joint training programmes in place to health care workers to obtain skills in identifying and managing TB and other opportunistic infections.  
.....
- b) What additional training programmes are required?  
.....
- c) What joint training manuals (materials) addressing both TB and HIV are available in your province?  
.....
- d) Are DOTS supporters trained in HIV prevention?  
.....  
If so estimate how many have been trained?  
.....
- e) Are DOTS supporters trained on HIV/AIDS home based care?  
.....  
If so estimate how many have been trained or in how many districts has this training been done?  
.....
- f) Are AIDS home-based carers trained on DOTS, and early diagnosis of TB?  
.....  
If so estimate how many have been trained or in how many districts has this training been done?  
.....

**vii) Service Provision:**

- a) Do co-ordinators and supervisors address both TB and HIV/AIDS during support visits at local and district levels?  
.....
- b) In how many districts is HIV counselling and testing offered to all TB patients?  
.....
- c) In how many districts do HIV counsellors provide TB education as part of post-test counselling?  
.....  
.....
- d) What efforts have been made to prevent and treat HIV-related opportunistic infections in HIV-positive TB patients?  
.....  
.....
- e) What is the name of your proposed Provincial TB/HIV Training District?  
.....

**viii) Social Support:**

- a) What social support services are available for both TB and HIV/AIDS?  
.....  
.....
- b) Are there any efforts made to involve patients of both TB and HIV/AIDS in forming support groups?  
.....  
.....
- c) Is there any nutritional supplementary programme to these patients within your province?  
.....  
.....

**ix) Community Involvement:**

- a) Do DOTS treatment supporters provide education on HIV prevention?  
.....
- b) Are DOTS treatment supporters involved in condom distribution?  
.....
- c) Do HIV/AIDS home-based carers provide directly observed TB treatment?  
.....
- d) What incentives are given to DOTS supporters?  
.....
- e) What incentives are given to HIV/AIDS home-based carers?  
.....



**x) Operational Research**

- a) What operational research is currently running on TB/HIV/AIDS activities?  
.....  
.....
- b) What operational research have you planned jointly in addressing TB/HIV issues?  
.....  
.....

**xi) Monitoring and Evaluation**

- a) Are there any efforts to conduct joint monitoring and evaluation?  
.....  
.....



Figure 1: CLINICAL ALGORITHM FOR MANAGEMENT OF TB AND PLWHA

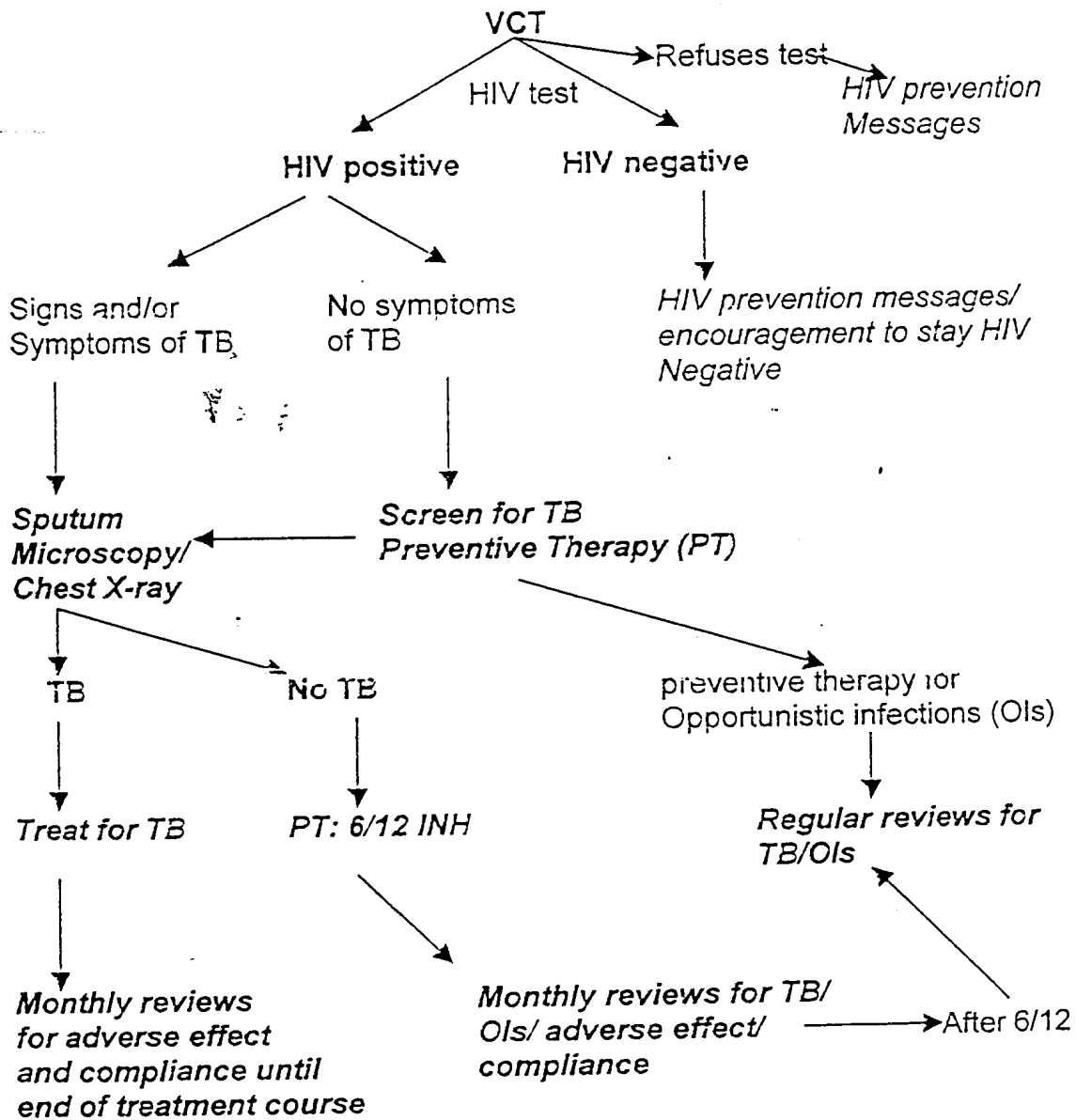




Figure 1 Interventions to interrupt the sequence of events by which HIV fuels TB epidemic

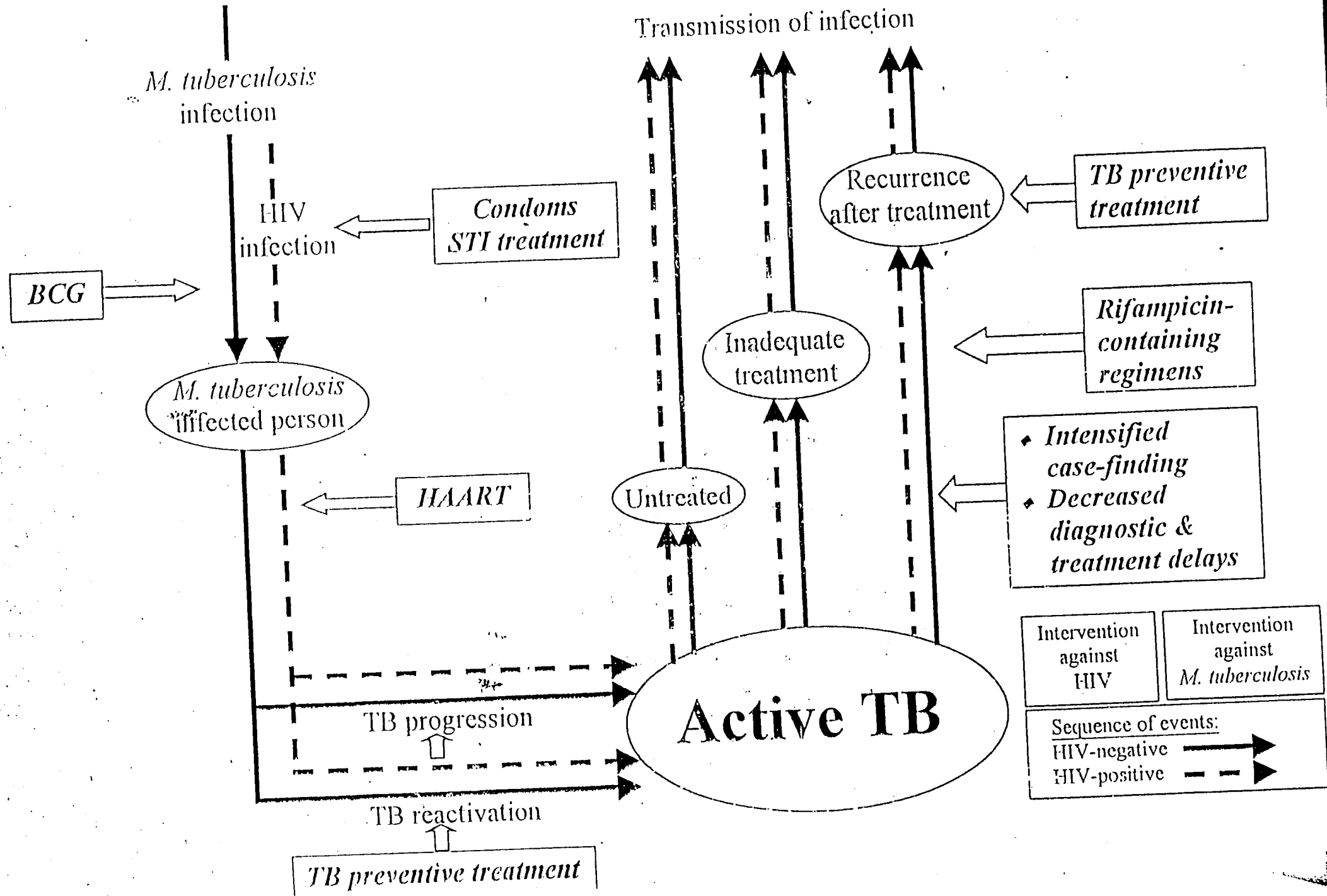
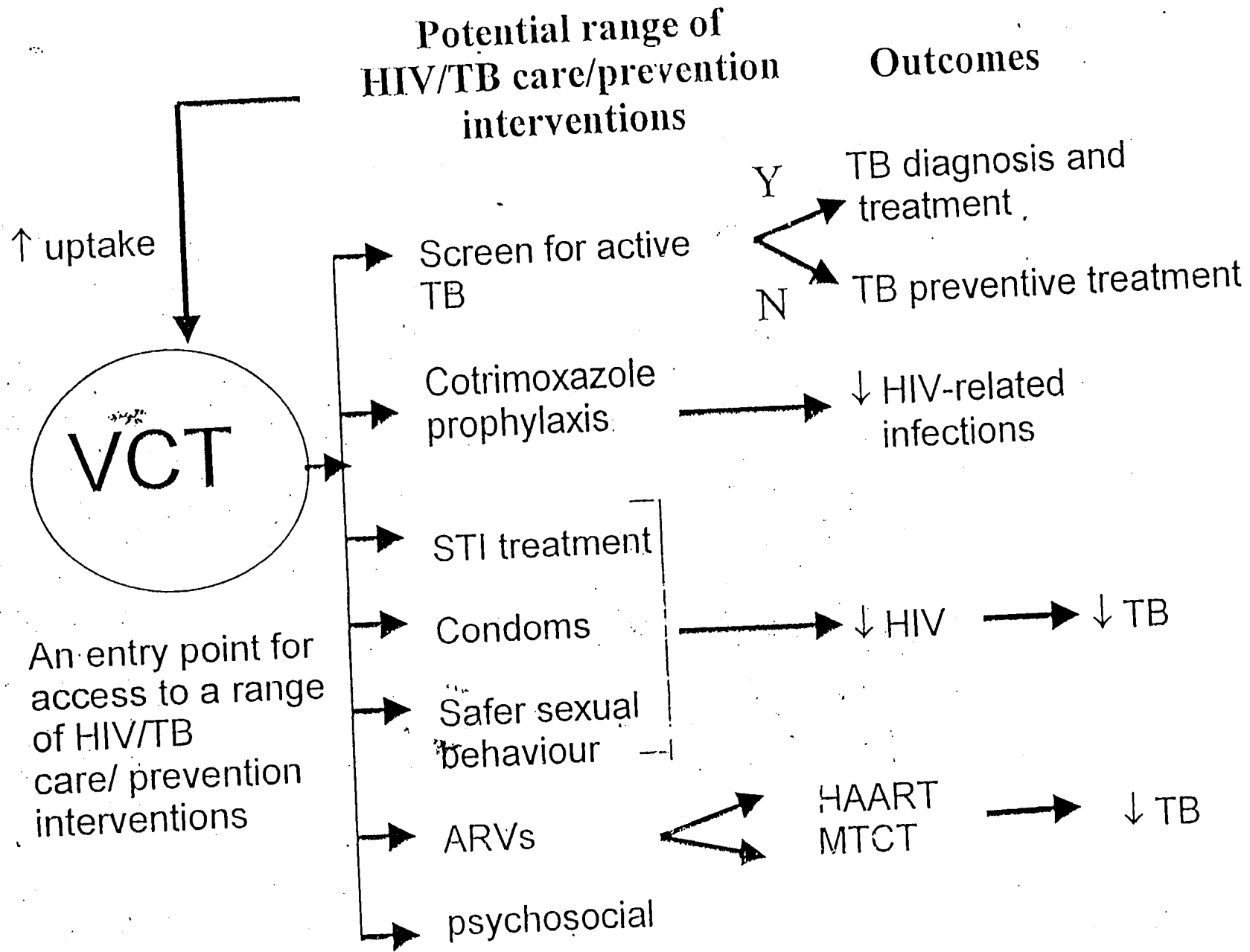


Figure III ProTEST - operationalising the links between TB/HIV care and prevention activities





<b>TERTIARY CARE</b> (referral hospital)		Protection of HCWs eg post HIV exposure prophylaxis	Management of complications of HIV-related diseases <i>As per middle resource level</i>
	Management of complications of common HIV-related diseases, including TB (eg pericardial, peritoneal), cryptococcal meningitis, toxoplasmosis, PCP	<i>As per low resource level</i>	<i>As per low resource level</i>
<b>SECONDARY CARE</b> (district hospital)		<ul style="list-style-type: none"> <li>♦ Disease surveillance - less common HIV-related diseases</li> <li>♦ Prevention of HIV-related diseases, eg PCP, toxoplasmosis</li> </ul>	<ul style="list-style-type: none"> <li>♦ Diagnosis and treatment of uncomplicated HIV-related diseases, eg low grade pathogens, lymphoma, KS</li> <li>♦ HAART (decreases TB incidence)</li> <li>♦ Post-exposure prophylaxis</li> </ul> <i>As per middle resource level</i>
	<ul style="list-style-type: none"> <li>♦ Diagnosis and treatment of common HIV related diseases including severe pneumonia and diarrhoea and their complications (eg septicæmia), smear negative and extra-pulmonary, including disseminated, TB</li> <li>♦ Terminal in-patient care</li> <li>♦ Disease surveillance, eg TB recording and reporting</li> <li>♦ Protection of HCWs, eg TB</li> <li>♦ Safe blood</li> </ul>	<i>As per low resource level</i>	<i>As per low resource level</i>
<b>PRIMARY CARE</b> (health centre)			Clinical and laboratory monitoring of HIV progression
		<ul style="list-style-type: none"> <li>♦ ARV drugs for prevention of MTCT</li> <li>♦ Prevention of fungal infections</li> </ul>	<i>As per middle resource level</i>



	<ul style="list-style-type: none"> <li>• VCT for HIV</li> <li>• Prevention of HIV transmission: 1) condom treatment (syndromic management)</li> <li>• Detection and treatment of common HIV-related diseases, eg pneumonia, diarrhoea, TB (smear positive), candida</li> <li>• Prevention of common HIV-related diseases, eg isoniazid (TB) cotrimoxazole</li> <li>• Pain relief</li> <li>• Intensified TB case finding in congregate settings</li> <li>• Disease surveillance, e.g. TB</li> </ul>	<i>As per low resource level</i>	<i>As per low resource level</i>
<b>HOME &amp; COMMUNITY</b>			<ul style="list-style-type: none"> <li>• Terminal care with advanced medical technology</li> <li>• Domiciliary treatment of HIV-related diseases, eg CMV, lymphoma, KS</li> </ul>
		<ul style="list-style-type: none"> <li>• Terminal care with health care professional input</li> <li>• Formula feeds for infant</li> <li>• Nutritional supplementation</li> </ul>	<i>As per middle resource level</i>
	<ul style="list-style-type: none"> <li>• Information and education               <ul style="list-style-type: none"> <li>- basics of HIV transmission and means of prevention</li> <li>- common HIV-related diseases</li> </ul> </li> <li>• Support groups, e.g. TB Clubs</li> <li>• Community member support of TB patients (e.g. DOT)</li> <li>• Breastfeeding advice</li> </ul>	<i>As per low resource level</i>	<i>As per low resource level</i>
<b>Resource level</b>	<b>LOW-INCOME</b>	<b>MIDDLE-INCOME</b>	<b>HIGH-INCOME</b>
<b>Current level of provision</b>	Most low- and middle-income countries have yet to implement these basic minimum essential services		
<b>HIV seroprevalence in adults in countries</b>	e.g. Zimbabwe (25%), Zambia (20%), Malawi (16%), Kenya (14%), Uganda (8.30%), Tanzania (8.10%), Haiti (5.20%), Cambodia (4%), Myanmar (2%)	e.g. Botswana (35.80%), South Africa (19.95%), Guyana (3%), Russia (0.18%)	e.g. USA (0.61%), Spain (0.58%), France (0.44%), Canada (0.30%), UK (0.11%)
<b>Time-scale for extending access to all</b>	10-15 years	5-10 years	0-5 years
<b>Extra resources needed</b>	+++	++	+



**Appendix II:**

**PARTICIPANT INFORMED CONSENT**

I hereby confirm that I have been informed by the investigator **Dr FLM Hyera**, about the study on "Integration of TB and HIV/AIDS/STI services in the Republic of South Africa at provincial and national level; 2000" to be conducted in my province / directorate. The nature of the study was well explained to me at the National TB and HIV/AIDS/STI Co ordinators conference on 5<sup>th</sup> and 6<sup>th</sup> October 2001. Detailed of the study goal, objectives and a sample of the questionnaire were provided for comments before the study begins.

The explanation I have been given have highlighted clearly that no patient data or patient products will be mentioned or needed in the study. And that all information provided with each participant will be strictly confidential to the researcher.

As a participant, I understand that, I will be free to withdraw from the study any time for any reason and without jeopardizing my subsequent career. Also if the information required in the questionnaire is not ethical or pause a danger to my working environment.

I hereby certify that I agree to participate in this study.

Participant's Name:	.....
(TB or HIV/AIDS/STI Coordinator)	
Participant's signature	.....
Date:	.....
Name of Province	.....
Investigator's Name	Dr FLM Hyera – SHSPH, Pretoria
Investigator's Signature	.....
Date:	.....