Title: Analysing implementation of the integrated Tuberculosis, HIV and AIDS policy in a rural sub-district, Western Cape

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Abstract

Globally, tuberculosis (TB) and AIDS are the leading causes of morbidity and mortality of people, particularly in many developing countries. South Africa is among those countries with a high double burden of TB and HIV infections in the world. Although policy guidelines have been developed to mitigate the problems of TB and HIV co-infection, there are still challenges with their implementation. The aim of this study was to analyse the implementation of the integrated TB and HIV policy in a rural sub-district of the Western Cape. The study applied a descriptive survey method to collect data from 60 respondents selected using an all-inclusive sampling strategy. A self-reporting questionnaire was used, and data were analysed using the Statistical Package for Social Sciences (SPSS) program version 23. Descriptive statistics are presented with graphs and percentages. All ethical principles were adhered to. The results showed that 86% of the respondents were female nurses, 59% were registered nurses, and the rest were enrolled and assistant nurses. The general view of participants was that implementation of the integrated TB and HIV policy was poor, as only 25% (11) felt that they have sufficient knowledge and skills to implement it, while 50% (22) did not feel equipped to implement the integrated policy. These perceptions of inadequacy were justified by a lack of sufficient training, with only 32% of the respondents having attended training on integrated TB and HIV management. The nurses' responses on actual practices ranged from poor to sufficient, and example being the management of HIV-positive TB patients with CD4 count of <100/µl, where 27.9% were unsure when to initiate antiretroviral therapy and 44.7% were unsure when isoniazid prophylaxis could not be given to HIV-positive patients. However, the findings indicated that TB and HIV policy guidelines were 86% and 85.7% accessible respectively. The study concluded that nurses do not implement the integrated TB and HIV policy guidelines sufficiently, mainly due to lack of adequate training which resulted in limited knowledge thus poor practice. It is recommended that a continuous staff capacity development programme, which includes suitable pre-service and in-service training in TB and HIV/AIDS management be developed and implemented as it has the potential to address the current knowledge and skills gaps which impact on implementation of the integrated TB and HIV policy.

Key words: Tuberculosis, HIV and AIDS, co-infection, integrated TB/HIV policy implementation, professional nurses, rural sub-district

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Declaration

I declare that *Analysing implementation of the integrated tuberculosis, HIV and AIDS policy in a rural sub-district, Western Cape* is my own work, that it has not been submitted before for any degree or examination in any other University, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

Million Bimerew Date: November, 2015

Signed

Dedication

I dedicate this Master's thesis to my wife Rahel Tegene and our children Yeabneh M. Bimerew and Amy M. Bimerew.

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Abbreviations

ART	Antiretroviral treatment
DoH	Department of Health
DOTS	Directly observed treatment (short course)
HAST	HIV, AIDS, STIs and TB
HIV	Human immunodeficiency virus
HSRC	Health Sciences Research Council
IMCI	Integrated management of childhood illnesses
INH	Isoniazid
IPT	Isoniazid prophylaxis treatment
IRIS	Immune reconstitution inflammatory syndrome
MDR	Multidrug-resistant
NDoH	National Department of Health
PHC	Primary health care
PMTCT	Prevention of mother-to-child transmission
SANAC	South African National AIDS Council
STIs	Sexually transmitted infections
TAC	Treatment Action Campaign
TB	Tuberculosis
VCT	Voluntary HIV counselling and testing
WHO	World Health Organization

CHAPTER ONE

STUDY OVERVIEW

1.1 Introduction

Analysing the implementation of the integrated tuberculosis, HIV and AIDS policy in a rural sub-district, Western Cape' is part of the bigger study project 'Intervention strategies to improve the implementation of TB and HIV/AIDS policies in health care facilities in a rural sub-district of the Western Cape'. The findings from this study will contribute to the project, as they will form part of the baseline data for formulation of the strategies. Chapter one deals with the background to and rationale for the study, problem statement, aim and objectives, and significance of the study.

1.2 Background to the study

Globally, tuberculosis (TB), HIV and AIDS are the leading causes of morbidity and mortality, particularly in many developing countries. TB is one of the most deadly communicable diseases in the world. According to the *Global Tuberculosis Report 2014* by the World Health Organization (WHO) (2014), in 2013 an estimated 9 million people contracted TB and 1.5 million died from the disease; in the same year an estimated 1.1 million (13%) of those who contracted TB were HIV positive. Of the 9 million people who developed TB in 2013, more than half (56%) of them were in the South-East Asia, and a quarter were in the African region (WHO, 2014). Although 60% of cases and deaths related to TB occur among men, the burden of diseases among women is also high. In 2013 alone an estimated 510 000 women globally died due to TB (WHO, 2014).

South Africa is among the 22 countries in the world with a high burden of TB; of these, nine are in Africa (WHO, 2014). South Africa has the highest incidence rate of TB at

981/100 000 members of the population in 2010; in the same year the prevalence rate was 795/100 000 (Massyn, Day, Barron, Haynes, English & Padarath, 2013; Chehab, Vilakazi-Nhlpo, Viranken, Peter & Klausner, 2013; WHO, 2014). Although TB incidence rates are decreasing in other parts of the world, including in some parts of Africa, in South Africa TB incidence rates are increasing, with an estimated incidence of 450 000 cases of active TB reported in 2013 (WHO, 2014). This was translated into an increased TB incidence rate of 1000/100 000 in South Africa (WHO, 2014). The report further indicated that the TB incidence rate in South Africa will continue to increase in the future compared to the global prevalence rate of 160/100 000 (WHO, 2014).

There are variations in the proportions of TB infection among the provinces of South Africa. In 2013 KwaZulu-Natal province had the highest number of people infected with TB, followed by Eastern Cape and Western Cape (Stats South Africa, 2013). In KwaZulu-Natal about 99 067 cases of TB were recorded, 6926 of which were in children under the age of five; this is more than 1000/100 000 members of the population (Stats South Africa, 2013). A WHO study indicates that the proportion of TB burden in the Western Cape was 12.3%, compared to its proportion of the total population of 10.4% (WHO, 2010a). This indicates that the Western Cape has the highest TB incidence rates compared to other provinces in South Africa (WHO, 2010a) with rural areas among the worst affected.

The South African treatment success rate among smear-positive and smear-negative TB patients has improved from "70% to 76%" respectively (Churchyard et al., 2014). However, the treatment success rate among retreatment cases remains poor at 66.3%. The major concern was up to 25% of sputum smear-positive TB cases are lost to follow up before treatment initiation, which contributed to the on-going transmission of diseases and the risk of increasing death (Churchyard, et al, 2014). South Africa adopted the

WHO TB prevention strategies such as treatment of latent TB infection among high risk persons, case findings to detect and treat infectious TB earlier and reducing the duration of infection (Churchyard, et al, 2014).

Looking at HIV infection, there are about 35 million people globally who are living with HIV, and 19 million people do not know their HIV status (UNAIDS, 2015). About 2.1 million were newly infected with HIV in 2013 alone; however, the infection rate has declined by 38% from 2001 when there were 3.4 million new infection and in the last three years new infections fell by 13% (UNAIDS, 2014). The progress made to eliminate new HIV infections among children is encouraging. In 2013, 240 000 children were newly infected which is 58% lower than in 2002 when 580 000 children were newly infected with HIV. Providing access to antiretroviral therapy (ART) for pregnant women living with HIV has prevented more than 900 000 new HIV infections among children since 2009 (UNAIDS, 2014; WHO, 2014). In 2013 there were 1.5 million deaths related to AIDS, however this has fallen by 35% since 2005. In the last three years deaths related to AIDS decreased by 19%, which symbolises the largest decline in the past 10 years (UNAIDS, 2014).

In sub-Saharan Africa Malawi has seen the largest decline in the rate of HIV infection in children, with a drop of 67%. New HIV infections also decline by 50% in seven other African countries: Botswana, Ethiopia, Ghana, Mozambique, Namibia, South Africa, and Zimbabwe (WHO, 2014). The results further show that the number of deaths related to AIDS declined by 39% between 2005 and 2013 in this region. Deaths associated with AIDS declined significantly in a few African countries, including Ethiopia (37%), Kenya (32%) and South Africa (51%); however, the region still accounted for 74% of people dying from AIDS associated causes in 2013 (UNAIDS, 2014). The decline of AIDS-related deaths was mainly due to ART.

Despite some progress towards the reduction of new infections with HIV, there are still challenges facing many countries, due to young women still being at increased risk of HIV infection due to alcohol abuse, violence against women and socio-economic insecurity/poverty (UNAIDS, 2014). Three countries that remain severely affected by new infections despite the downwards trends in other parts of Africa are Nigeria, South Africa and Uganda and these three countries accounted for 48% of the new infection in the region in 2013 (UNAIDS, 2014).

South Africa has 0.7% of the world's population, yet 17% of the global burden of HIV infection (Padayatchii, Naidoo, Dawood, Kharsany & Karim, 2010). It has been estimated that about 6.4 million people were living with HIV/AIDS in South Africa, and with more than 400 000 new HIV infections occurring in 2012, it ranks first in HIV/AIDS incidence in the world (Malan, 2014). The proportion of South Africans infected with HIV has increased from 10.6% in 2008 to 12.2% in 2012 (Malan, 2014; Shisana et al., 2014). According to this Human Sciences Research Council (HSRC) survey report (2014), KwaZulu-Natal province has the highest HIV prevalence rate (16.9%), followed by Mpumalanga (14.1%), Free State (14%), North West (13.3%), Limpopo (9.2%), Northern Cape (7.4%) and Western Cape Province (5%). In overall age categories, females have the highest HIV prevalence rate compared to their male counterparts (National Department of Health (NDoH), 2013; Shisana et al., 2014), with the rate among females aged 30-34 years the highest at 36%. It has been identified that young women who experience intimate partner violence are 50% more likely to acquire HIV than women who have not experienced such violence (Shisana et al., 2014).

South Africa has both strengths and weaknesses in the management of TB, HIV and AIDS. Strengths include acceptance of the DOTS strategy by the provinces, financial resources, health infrastructure and a reliable drug supply in most instances. On the other

hand, weaknesses include the failure of the national and provincial Department of Health (DoH) to respond to the TB epidemic, an incomplete implementation of the DOTS strategy, inadequate investment in TB management, and the absence of appropriate TB microscopic services among others (Churchyard et al., 2014). Furthermore, considering the severity of the problem of the TB epidemic, awareness of the problem generally and among the policy makers is very low. In contrast, HIV and AIDS have seen significant and growing political support over the years.

Over the past 10 years a considerable efforts have been put into managing the HIV epidemic by implementing an effective response focused on HIV prevention, treatment, care and support in South Africa (Shisana et al., 2014). The National Strategic Plan on HIV, STIs and TB 2012-2016 (NDoH, 2012a) sets out four key strategic objectives: (1) addressing social and structural barriers that increase vulnerability to HIV, STIs, and TB; (2) preventing new infections with of HIV and TB; (3) sustaining health and wellness; and (4) increasing the protection of human rights and improving access to justice (NDoH, 2013). The survey by the HSRC indicates that the current high number of people living with HIV and AIDS is due to the combined effects of the successful expansion of the ART programme (with about 3 million people living with HIV/AIDS on ART) in South Africa, and also due to the high new infection rate (Shisana et al, 2014). Based on the survey findings it is unlikely that the NDoH's 2012-2016 National Strategic Plan will achieve its target of a 50% reduction in new HIV infections by 2016 (Shisana et al., 2014).

Notably, there has been significant progress made in fighting HIV and AIDS in South Africa through designing various measures and strategies, such as policy guidelines. While there was a decline in new HIV infections in 2013 compared to the previous years, as well as a decrease in the mortality rate related to AIDS as a result of scaling up the

ART programme in the country (NDoH, 2014c), there are still challenges facing the country in maintaining the success achieved. These include the issue of new HIV infections still rising among young women due to various socio-economic problems. The other major problem facing the country is the burden of TB and HIV co-infection, which makes the issue more complex.

TB is the leading cause of death in HIV-infected patients, and HIV is the greatest risk factor for developing active TB (Hermans et al., 2012). One-third of the 34 million people living with HIV worldwide are infected with latent TB (Mburu & Richardson, 2013). About 79% of these people live in sub-Saharan Africa. Of the 22.5 million people living with HIV/AIDS in sub-Saharan Africa, 2.8 million were diagnosed with TB in 2009 (UNAIDS, 2010; WHO, 2010b). In 2011 about 430 000 people died of HIV-associated TB in sub-Saharan Africa (Mburu & Richardson, 2013). TB accounts for 26% of AIDS-related deaths (Getahun, Gunneberg, Granich & Nunn, 2010). HIV-related immunodeficiency increases susceptibility to TB, and HIV increases the progression of diseases in people with TB alarmingly (Kwan & Ernst, 2011 UNAIDS & WHO, 2009; WHO, 2010b). In a study by Oni et al. (2015) it was reported that HIV was the most common co-morbidity in patient with TB, and TB was also the most common co-morbidity in patients with HIV. In countries with a higher prevalence of HIV infection, TB is the most common opportunistic infection in HIV-infected patients (WHO, 2013). The lifetime risk for a TB-infected person to develop clinical TB is about 5-10% in an HIV-negative person and 50% in an HIV-positive person (Lazarus, Olsen, Ditiu & Matic, 2008). TB leads to death within a month in 90% of those who are co-infected if left untreated (Lazarus et al., 2008).

The African region is the most affected by the TB and HIV epidemic in the world, with almost 80% of HIV-positive TB cases in 2013 (WHO, 2012). Of the nine Southern African countries with a high burden of TB and HIV co-infection on the continent, South Africa has the highest double burden of HIV and TB infections (WHO, 2012). The WHO (2012) report indicated that the TB and HIV co-infection rate exceeds 70%, with TB being the most common opportunistic infection in HIV-positive patients in South Africa.

Although TB death rates have been declined by 6.1 percent between 2000 and 2013, more than 250 000 South Africans die every year due to TB- and AIDS-related diseases (WHO, 2014). Of the 450 000 cases of TB in South Africa in 2013, about 270 000 (60%) are in people infected with HIV (WHO, 2014). However, a 2012 report from the NDoH shows that about 73% of TB patients were HIV positive (NDoH, 2012b).

A study by Chehab et al. (2013) showed that TB and HIV co-infection rates were very high in the province of KwaZulu-Natal. Additionally, TB and HIV co-infection present a number of challenges in drug-resistance management, including shared drug toxicities between TB and HIV drugs due to underlying HIV-related organ disease such as nephropathy, pharmacokinetic drug-drug interactions and immune reconstitution inflammatory syndrome (IRIS), including manifestation of extra-pulmonary sites. Mortality in multi-drug resistant (MDR)-TB is higher in HIV-positive patients; however, ART improves survival in patients with drug-resistant TB (Lim et al., 2014; Meintjes, 2014).

In the Global Plan to stop TB 2011-2015, the following key TB and HIV targets were set to be achieved by the end of 2015: (1) about 100% of TB patients should know their HIV status; (2) about 100% of HIV-positive TB patients should be enrolled on ART; and (3) those newly enrolled in HIV care and eligible for treatment of latent TB infection should

be provided with isoniazid prophylaxis therapy (IPT) (WHO, 2014). Achieving these targets has particular importance for the African region, including South Africa, to reduce TB and HIV infections (WHO, 2014).

In South Africa a number of policies and guidelines have been devised to enhance the provision of health care that takes cognizance of the double burden of TB and HIV, and these include the 2014 National Tuberculosis Management Guidelines (NDoH, 2014b). South Africa has made significant efforts to reduce the problem of TB and HIV co-infection, such as adopting the integrated TB and HIV policy and establishing the largest ART and TB infection control programmes in the world, and setting targets to meet. In line with global targets, the TB and HIV integrated guidelines highlight the necessity to increase the number of people living with HIV who are screened for TB, the number of people infected with TB who know their HIV status, the provision of ART to patients living with HIV who have TB, the provision of co-trimoxazole and isoniazid (INH) as preventative therapy to those living with HIV, and scaling up the TB and HIV monitoring (NDoH, 2014b; WHO, 2010b, WHO,2014), activities that are conducted at various levels of the health care system, starting from primary health care (PHC) centres, within the PHC approach.

The current practices for managing TB and HIV/AIDS health services in many developing countries are mainly run using traditional vertical programmes. However, in addressing the TB and HIV co-epidemic vertical programmes are not an option, because the limited evidence available suggests that vertical approaches to health care are more beneficial for a single specific objective that has measurable outcomes for donors (Atun, Bennett & Duran, 2008). They are less likely to be effective for conditions that have multiple causes or co-morbidity such as the TB and HIV co-epidemic, cardiovascular disease, cancer, substance abuse, and mental health (Atun, et al., 2008).

For more than a century vertical programmes failed to reduce TB, malaria and HIV infections in the developing world (Uplekar & Raviglione, 2007). Therefore, there is a call from the WHO for an integrated TB and HIV health service (WHO, 2012). National Strategic Plans for implementation of the integrated TB and HIV guidelines, with the aim of providing one-stop TB and HIV services, have been in implementation by the NDoH since 2011 (NDoH, 2012c). According to the integrated TB and HIV policy guidelines, TB treatment clinics should provide HIV counselling and testing and ART management services to TB patients, and manage TB and HIV co-infected patients through one healthcare provider at a one-stop TB clinic (Deo, et al, 2012; Howard & El-Sadr, 2010; Legido-Quigley, et al, 2010). Similarly, HIV clinics should conduct TB screening for HIV-positive patients, provide IPT and co-trimoxazole preventive therapy to HIV-positive patients, and manage TB/HIV co-infected patients at HIV clinics through one healthcare provider.

Referring TB and HIV co-infected patients to a TB clinic for TB services and to an HIV clinic for HIV management can result in low uptake of the services due to the long waiting times at two different clinics and the stigma attached to visiting them (Legido-Quigley, et al., 2010). According to the TB and HIV integrated policy, those healthcare staff providing services to TB patients should be trained on the assessment and management of HIV-positive patients; similarly, those healthcare staff working with HIV-positive patients should be trained on the assessment and management of TB patients (NDOH, 2012b).

The 20-year vision of the National Strategic Plan for 2012-2016 is to reduce new HIV infections by at least 50%, initiate at least 80% of eligible patients on ART with 70% living, reduce the number of new TB infections and deaths by 50%, and reduce self-reported stigma and discrimination related to HIV and TB by 50% (South African

National AIDS Council (SANAC), 2011). The PHC approach adopted in South Africa in 1997 from the 1978 Alma-Ata Declaration contributes towards the development of a unified health system, and its implementation at the community level has been facilitated by the district health system (Draper & Louw, 2007).

In a country like South Africa, where the burden of TB and HIV is high, with records of about 328 896 TB notifications in 2013, of which 312 380 were new and relapse patients, including 37 485 (12%) who were under 15 years of age – nurses need to be able to implement the developed policy in the fight against the double burden of the TB and HIV epidemics (WHO, 2014). As in many developing countries, nurses are the frontline health care providers in South Africa, and play a significant role in the implementation of healthcare policies; they need to be involved in the development of health care policies and, to be adequately trained about the policies that they are supposed to implement. However, policies are developed centrally without the involvement of stakeholders, and imposed on nurses for implementation without any support system. These factors have always created challenges for effective policy implementation.

Therefore, there is no certainty whether the integrated TB and HIV policy is implemented adequately to reduce the spread of TB and HIV co-infection. Hence this study analyses the implementation of the integrated TB and HIV policy driven by nurses in rural areas.

1.3 Problem statement

Despite significant efforts to curb the TB and HIV epidemics, there are still challenges in controlling concomitant TB and HIV co-infection, which continue to spread progressively at a distressing rate (Padayatchii et al., 2010). The challenges faced in

controlling TB and HIV co-infection are those relating to human resources, including poorly trained or supervised health care personnel and inadequate health systems, which result in low case detection, poor continuity of care and high levels of treatment interruption, as well as poor-quality data collection, analysis and use (NDoH, 2012c). Another challenge is translation of the policy into action (Gray, Vawda & Jack, 2011).

The management of TB and HIV co-infected patients is often fragmented, with little coordination of care between TB and HIV treatment programmes in many areas (WHO,2013); Collaboration between TB and HIV programmes and integration services is hindered by a history of independent structures and functions established at national level, where TB programmes and HIV programmes are still vertically separated. In spite of this segregation of TB and HIV/AIDS programmes, PHC services are expected to implement an integrated service as per the national strategic policy guidelines (SANAC, 2011). This contradiction may have potentially affected the extent of integration of TB and HIV/AIDS policy implementation, especially in rural areas where resources are limited.

In addition, analysis of current implementation practices since introduction of the integrated strategy has not been conducted in most places, including in this study setting, which implies that no data were available to support efforts at system strengthening through improved implementation of policies. The integrated TB and HIV policy implementation started in February 2011 in South Africa however the researcher noted that the recommended supermarket approach was not used in many health facilities especially in rural areas where vertical programmes are still used due to different reasons which include infrastructure and lack of human capital among others. Hence there was a need to analyse the status of this implementation in the selected health facilities for study, which is what this study intended to do.

1.4 Aim of the study

The aim of the study was to analyse the implementation of the integrated TB and HIV/AIDS policy in a rural sub-district in the Western Cape.

1.5 Objectives

The objectives of this study were as follows:

- To analyse the implementation of HIV/AIDS care services for TB patients as a component of the integrated TB and HIV programme services at HIV clinics;
- To analyse the implementation of TB care services for HIV/ AIDS patients as a component of integrated TB and HIV programme services at TB clinics; and
- To determine the availability of policy guidelines/protocols for the implementation of the integrated set of activities for prevention and treatment of TB and HIV co-infected patients at health facilities.

1.6 Significance of the study

The results of the study will assist in determining the progress of implementation of the integration of TB and HIV/AIDS services and create awareness with regard to policy implementation gaps. This in turn will inform the bigger project in developing intervention strategies to improve implementation of the policies, thus strengthening the health system and reducing the incidence of TB and HIV co-infection in South Africa. In addition, the study highlighted how nurses should take ownership of the integrated TB and HIV services through engaging in the development plan, implementation and evaluation. The results of the study will provide baseline data for research that will be undertaken in the future.

1.7 Definition of concepts

Integrated TB and HIV programme services: These are all activities required in the care of TB and HIV co-infected patients, rendered in an integrated manner, by the same health care provider within the same unit at a one stop services.

TB and HIV co-infected patient: A patient that has a confirmed diagnosis of TB through sputum or X-Ray and have a confirmed HIV positive test, either on treatment for TB or for both TB and AIDS.

1.8 Outline of the thesis

The thesis is organised into six chapters, as outlined below:

- Chapter one contains an introduction to the study, providing a general background on TB and HIV infection, particularly those in South Africa, the state of the problem, problem statement, aim, objectives and significance of the study.

- Chapter two discusses a review of the literature on TB and HIV infection, models of care in managing TB and HIV infection (which includes vertical and integrated models of care), and the state of TB and HIV care and treatment.

- Chapter three discusses the methodology of the study, providing information on the quantitative research approach and research design.

- Chapter four deals with the findings of the study, while

- Chapter five presents a discussion of the findings.

- The final chapter, chapter six, provides the conclusion to the study and recommendations for the health services, for nursing education, and for future research.

1.9 Summary

TB, HIV and AIDS are the leading causes of morbidity and mortality of people globally, particularly in developing countries. Although several efforts have been made to mitigate the problems of TB and HIV co-infections, more than 60% of the cases and deaths occurring among men and women were due to TB. More than 2million people were newly infected with HIV in 2013 alone, and 1.5 million deaths were recorded related to AIDS in the same year.

In South Africa the available evidence indicates that the prevalence of TB is increasing, with 450 000 new infections in 2013; similarly, HIV infection is also increasing, from 10.6% in 2008 to 12.2% in 2012, with females those with the highest prevalence rates of HIV infection. A 2014 NDoH report (NDoH, 2014a) has shown the progress made in fighting TB and HIV infection, with a decline in mortality rates in 2013 compared to the previous years. Nevertheless, one of the major complex problems facing South Africa is the burden of the TB and HIV co-epidemic, which results in more than 250 000 deaths every year (WHO, 2014).

According to both the WHO and the NDoH, the TB and HIV co-infection rate was more than 70% (NDoH, 2012a; WHO, 2012). Based on the call from the WHO for integrated TB and HIV health services, the South African NDoH has developed a strategic plan to integrate TB and HIV services, which has been in implementation since 2011. However, the NDOH, 2014a) indicated that the integrated TB and HIV policy implementation was weak at health systems level.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of TB and HIV infections in general and of the situation in South Africa in particular, and how policies have been implemented in practice in the quest to manage the challenges presented by these diseases. Therefore, the different types of models of care that were used in fighting TB and HIV dual infections, and the model of care currently used in South Africa in the management of TB and HIV co-infections will be discussed. The chapter will highlight specifically the vertical (separate model of care), partial (some mixing) and integrated (one stop service) models of care, with the latter being the focus of this study. Lastly the chapter deals with the implications of models of care on policy implementation.

2.2 An overview of the burden of the TB and HIV co-epidemic

The HIV pandemic has driven the resurgence in TB since the 1990s, with sub-Saharan Africa the region in the world most heavily affected by the impact of these epidemics (WHO, 2011). In 2010 the African region accounted for 80% of the 1.1 million global cases of TB and HIV co-infection (WHO, 2011). For instance, 60% of TB patients had HIV infection in South Africa in 2010, compared to 1.7% in China (WHO, 2011). The combined impact of the TB and HIV epidemics has crippled the already weak healthcare system in poorly resourced countries (Howard & El-Sadr, 2010). It has presented immense challenges to the diagnosis, treatment and prevention of TB and HIV infections, each contributing to the increased incidence of morbidity and mortality of the other (Kaplan, et al, 2014; Reid & Shah, 2009).

Globally the burden of TB and HIV co-epidemics remains poorly addressed, with limited scale-up of integrated TB and HIV interventions, which leads to fragmentation of guidelines and supervision at the level of service delivery. The intervention strategies to reduce the burden of TB and HIV co-infection are two important therapeutic aspects: early provision of ART for people living with HIV, and IPT to reduce the risk of TB (Reid & Shah, 2009; WHO, 2010a). The WHO recommends sets activities with an integrated model of care to reduce TB among people living with HIV. However, many countries still follow the vertical model of care to deal with the problem of TB and HIV co-epidemics.

2.3 Models of care in managing TB and HIV/AIDS

Traditionally patients living with TB, HIV and AIDS have been receiving separate care in separate settings, rooms and buildings, even if they are the same patients in most cases, due to co-infections. The independent vertical model of care has been trying to address TB and HIV/AIDS epidemics for several years without showing any tangible outcomes (WHO, 2012). This rigid vertical structured model of care has no room for programmes' collaboration and service integration.

The WHO policy guidelines on collaborative TB and HIV activities reported that the integration of services reduces the burden of TB among people living with HIV and AIDS (WHO, 2012; Bygrave & Trivino, 2010). The report further highlighted that integrated services improve the early provision of ART for people living with HIV using three strategic objectives: intensified TB case finding followed by high-quality TB treatment, IPT and infection control for TB. Although the South African Government

adopted the WHO collaborative TB and HIV policy guidelines and developed the Strategic Plan 2012-2016 for its implementation (NDoH, 2012a), evidence in the literature has shown that the TB and HIV services are not yet integrated. In the following sub-section TB and HIV vertical models of care and integrated TB and HIV services are discussed.

2.3.1 Vertical models of care for TB and HIV/AIDS

For the purpose of this study the term vertical programme is used interchangeably with vertical approach, programmes or vertical models of care, because they are synonymous. The vertical approach is structured independently with specialised personnel from the top down, to enable hierarchical control of activities (Atun, Lazarus, Van Damme & Coker, 2010). The vertical approaches usually have one specific objective to accomplish autonomously of the general health system or other vertical programmes (Atun, et al, 2011).

The success of the vertical approach was recorded in the reduction of infection in industrialised countries, after the introduction of chemotherapy in 1940s until 1970 (Atun et al, 2011). This success story prompted the WHO to propose that such a vertical approach be used in developing countries. The success story of vertical programmes in the developed world that is strongly linked to the socio-economic conditions, failed to produce similar results in reducing infection rates in the developing world. For example, during the late 1950s the vertical programmes failed to reduce TB infection in less developed countries (Rio, Ramani, Hazarika & George, 2013). The reason for the failure of the approach was due to the fact that the mass case finding and specialised case management used in developed countries could not be effectively transferred to countries with less income. The cost of the vertical approach was far beyond the resources of these countries – in particular the cost of drugs was too high and they were not widely

accessible (Uplekar & Raviglione, 2007). Evidence has shown that the vertical approach could not provide a solution through its specialised structures to many of the vertical programmes such as malaria, TB, STIs and HIV infection (Rao, Ramani, Hazarik & George, 2013).

A series of research studies provided the foundation of the radical move towards the integration of TB programmes into the general health services (Uplekar & Raviglione, 2007). Although the integrated service policy proposal that was developed based on the research evidence was presented to the WHO expert committee on TB on several occasions, they failed to approve it. Despite the fact that there was evidence from the research that proved the benefits of integrating the services, the specialised vertical approach was continued without any changes (Rao, Ramani, Hazarik & George, 2013). The rationale was that the TB treatment had been specialised and standardised, and that multipurpose health personnel would not have the specialised knowledge to prevent, diagnose and treat TB (Rao, Ramani, Hazarik & George, 2013).

The TB control experts continued to be responsible for providing managerial support for vertical activities including training, supervision, logistics, health education, information system evaluation and operational research (Atun et al., 2008). A new policy which strengthened the vertical approaches were refined and endorsed by the WHO expert committee on TB, and then the TB control vertical programme became a national policy in almost all developing countries (Atun et al, 2010; Rao et al, 2013).

The debate on the comparative effectiveness of the vertical approach can be traced back to the 1960s; several issues and drawbacks related to its effectiveness led to the

Declaration of Alma-Ata on PHC in 1978. However, in the 1980s the success of smallpox eradication programmes and the proposal of the 1993 World Development Report investigating the health for essential packages of care made it possible for the vertical approaches to be kept intact (Atun et al., 2008). Subsequently the debate has been strengthened in favour of the vertical approaches, due to the growth in funding from donors targeted at specific diseases and services, such as the Global Fund to Fight AIDS, TB and Malaria (LeLoup,et al,2010; Mounier-Jack, et al, 2010, Rudge et al, 2010; Fan, Duran, Silverman & Glassman, 2013); however, the WHO emphasis has also been on strengthening health systems and PHC.

The argument that the vertical approach should be continued was driven by the assumption that concentrating on few well-focused interventions is an effective way to maximise the effects and time response of the available resources, rather than waiting for changes in the health system (Atun et al., 2008). The argument against vertical approaches tends to assert that they are value-driven, often have limited chances of sustainability, and have negative spill-over effects on health systems and the non-targeted population. Despite the wide range of discussions over the last 60 to 70 years there was limited evidence on the relative benefits of the vertical approach in health service delivery (Desai et al, 2010).

The legacy of the vertical approach represents a further complex situation in the health delivery system, and create great obstacles in achieving any meaningful reform of health system organisation, funding and delivery (Atun, Jongh, Secci, Ohri & Adeyi, 2009). This applies specially to TB, HIV and injecting drug use, with strong resistance to horizontal (integrated) approaches, which are regarded as foreign, naïve, idealistic and

unachievable (Atun et al., 2008). Therefore, any changes or modification to service delivery would not be accompanied by changes in health systems governance arrangements, organisation and funding along with regulatory and legal reforms, and this created barriers to change (Atun et al., 2009).

In health systems, programmes for public health interventions, communicable diseases and mental health have traditionally been organised as vertical services with parallel organisational structures that report directly to the health minister, often with ring-fenced funding streams that offer no flexibility to shift funds between programmes (Atun et al., 2010). This is particularly true for TB, HIV, substance abuse, sexually transmitted illnesses, diabetes and mental health. As low- and middle-income countries rely on external funding for health systems delivery, this is a determining factor on the extent to which the health services are organised vertically ((UNFPA) with reproductive health (Atun, Weil, Eang & Yusa, 2010). External funding from multilateral and bilateral donor agencies, which is increasingly from philanthropic organisations, is often provided for specific diseases or services. Examples of these are the Global Fund for the Fight against HIV, TB, and Malaria; UNICEF with the integrated management of childhood illness (IMCI) strategy, the Global Alliance for Vaccines and Immunization (GAVI) with immunisation services, and the United Nations Population Fund (UNFPA) with reproductive health (Atun, Weil, Eang & Yusa, 2010). Although these agencies emphasise health systems, the governance and reporting structures for the disease- and services-specific programmes of these agencies encourage vertical programmes, and hinder integration into mainstream health systems or PHC level (Uplekar & Raviglione, 2007; Uplekar, Weil & Raviglione, 2009). Furthermore, in many developing countries the fragility of the state, limited capacity of the health system and weakness of PHC

mean integration may not be feasible and vertical programmes will have an indefinite life (Rao et al., 2013). Although these constraints clearly make the integration of services impossible, policy makers need to negotiate with funding agencies that are promoting vertically oriented programmes and ensure that any negative spill-over effects are minimised.

The first integrated strategy – that of directly observed therapy (DOT) – emerged in Madras Chemotherapy Centre in India in 1964–1976 (Uplekar & Raviglione, 2007). The Madras Chemotherapy Centre indicated the effectiveness of home-based treatment and suggested that TB hospital beds were no longer needed to cure the disease. The team also highlighted the efficacy of the intermittent regimens, which facilitated full supervision of INH intake as the companion drug of streptomycin injection, given twice weekly at the health centres. Notably, Wallace Fox's concept, published in 1958, refers to "entirely supervised administration of medicine". Bayer and Wilkson, as cited in (Uplekar and Raviglione, 2007) began to emerge as a result of the work of the Madras Chemotherapy Centre. The concept of DOTS was not original in the TB field, but was inspired by the existing experience of supervised administration of sulphones in leprosy, Hetrazan in filariasis and prophylactic antimalarials mostly in African programmes.

The strategy of DOTS was designed to fight the epidemic of TB and reverse the increasing incidence of the disease. However, due to weak commitment and resource constraints, the scaling-up of the DOTS model was ineffective in developing countries (Atun et al., 2010). The decline in TB incidence was slow, millions patients were undiagnosed or their TB was detected late, and the scale of intervention to address MDR-TB and HIV-associated TB was fragile and fragmented (Atun et al., 2010). The growing

loads of patients with TB and HIV co-infection led to the need for increased complexity of TB monitoring and evaluation (WHO, 2009a).

Fragmented and poor access to health services impedes early and full case detection, and leads to low treatment success in many African countries, including South Africa. Many countries have struggled with poor linkages between the vertical TB programme and health system reform; this limitation led to a call for development of effective health systems (Uplekar, Weil & Raviglione, 2009). Hence health systems globally have tried to identify different models of care in managing TB and HIV patients, in light of challenges with adherence to treatment due to repeated trips to access treatment for both these diseases. Moreover, the US Department of Health and Human Resources has emphasised that the single categorical services provided to persons with multiple related risks miss significant opportunities to diagnose, treat and prevent diseases (communicable disease control) (Centers for Disease Control and Prevention, 2009). Hence the call for integrated health services in order to address the complex problems of TB and HIV co-infection in the developing world. In South Africa the National TB Programmes established after 1994 faced the challenges of integrating TB services into weak PHC systems and emergence of an HIV epidemic which led to TB case rates quadrupling between 1994 and 2012.

2.3.2 Integrated TB, HIV and AIDS model of care

Integrated services is defined as the process of bringing together common functions within and between organisations to solve common problems, developing a commitment to share a vision and goals, and using common technologies and resources to achieve the goal (Atun et al., 2008).

Atun et al. (2008: page3) explain:

> *"Integrated services, also known as horizontal programmes that integrate health services or horizontal approaches, seek to take the overall health problems on a wide front and on long-term basis through the creation of a system of permanent institutions commonly known as general health services".*

For the purpose of this study, the terms integrated approach or services have been used interchangeably. In a nutshell, the integrated approach includes a variety of managerial or operational changes to health systems to bring together inputs delivery, management or organisation of particular service functions; it may be described as a process where disease control activities are functionally merged or lightly coordinated with multifunctional health care delivery, examples of these being integrated PHC, and the IMCI strategy (Atun et al., 2010).

The first movement of integration work was started between 1964 and 1976 by the TB experts with long scientific and programmatic experience in less developed countries at Madras Chemotherapy Centre in India. It was this chemotherapy centre that suggested the significance of home-based TB treatment (Atun et al, 2010). The second movement of the integration process during 1977–1988 was driven by general public health experts and the PHC promoters (Atun et al, 2010). During this time the TB specialists were only responsible for providing training, supervision, logistics and technical support to general health workers (Atun et al, 2010). The motive behind this transformative process of integrating all programmes to operate under the same management and support system was to utilise human and financial resources more effectively, to eliminate duplication of work, and to provide a more effective support system to TB control units (Atun et al., 2010). There were some examples of success stories from the integration process, such as

the integration of immunisation activities (expanded programmes on immunisation), the integration of drugs logistics into a single drugs programme, and the integration of TB services into general public health laboratories(Atun et al., 2010). In the 1980s the TB control integrated management process was accelerated, with globalisation of "health sector reform" to increase equity, efficiency, and quality (WHO, 2010b). This process has three phases: decentralisation of authority, managerial integration of programmes and public consultation.

However, these success stories were overshadowed by the failure of TB control in many developing countries (WHO, 2010a). This was compounded by the economic crisis which weakened the public health infrastructure; hence integration was regarded as leading to deterioration of the quality of case findings and treatment (Atun et al., 2010). There was no proper training of general health experts on the specialised programmes to provide adequate supervision and training for TB control (Atun et al., 2008). The information systems to provide data to monitor and evaluate case findings and treatment and critical TB drug storage were fragmented (WHO, 2008). During the integration period the WHO, international donor agencies, most health ministries and academic institutions lost interest in TB control (WHO, 2008). The excessively speedy process of implementing health sector reforms, with too little participation of TB managers, was particularly destructive to the TB programme in many developing countries (Atun et al., 2010).

At the time that the HIV/AIDS pandemic began to spread, causing a rapid increase in TB morbidity, neglect of TB control everywhere in the world (including industrialised countries) became evident. Although correct in theory, the integration policies had

resulted in a loss of visibility of TB control and a gradual loss of expertise in organising effective case management activities (Cavalli, et al, 2010). There was a substantial gap between the international resources for TB control and the major public health sector concerning the diseases represented worldwide. The deterioration of socio-economic conditions in many countries resulted in increased poverty and malnutrition, which created favourable conditions for the transmission of TB infection and progression to disease (Atun et al, 2010). In 1990 it was estimated that the global incidence of TB infection was 8 million new cases, resulting in around 3 million deaths.

As a result of these shocking effects and the crisis in TB control during the 1980s, another movement towards returning to the old vertical approach was started from 1989 to 1998 (Atun et al., 2008). The rapid expansion of TB worldwide could no longer be ignored. This prompted reprogrammatisation of TB control, focusing primarily on improvement of curative rates to achieve an 80% cure rate through effective short course chemotherapy regimens and expansion of case finding (Atun et al., 2008).

A new strategic approach to TB control emphasising specialised managerial functions at central, regional and district level was established by the WHO; nevertheless the principles of integration of case management delivery into the PHC infrastructure were maintained. The 44th World Health Assembly in 1991 adopted a new strategy and developed two global targets for TB for 2000 of curing 85% of infectious cases detected and detecting 70% of cases (WHO, 2010a). The new strategy, subsequently labelled DOTS, provided a framework for effective TB control. However, the coverage reached in many countries was limited and only 23% of the estimated infectious cases worldwide were treated under the DOTS model in 1999 (Atun et al., 2008). The managerial

challenges were not those of adapting DOTS, but of expanding the coverage from pilot areas to the entire country. As a consequence, nearly 80% of the estimated infectious cases still lacked access to diagnosis and treatment (Atun et al., 2008).

At the beginning of 2001 a Stop TB unit was established by the WHO, considering this the best way to achieve a wider implementation of DOTS through a clearly defined managerial approach and a more visible structure. However, during this period there were two challenges to be addressed: the TB and HIV co-epidemic and the spread of MDR-TB (Atun, 2010). It is becoming clear that without functional integration of TB and HIV/AIDS prevention and control little can be achieved, particularly in Africa.

To mitigate the dual burden of TB and HIV infection, strengthening collaborative activities across the diseases' areas and integrate services, the WHO developed an interim policy on collaborative TB and HIV activities in 2004 (Centers for Disease Control and Prevention, 2009). This policy was updated in 2012 by incorporating the latest available evidence on the success rates of integrated TB and HIV services (WHO, 2012).

The collaborative policy has three specific objectives: establishing and strengthening mechanisms for integrated delivery of TB and HIV services; reducing the burden of TB among people living with HIV and initiating early ART; and reducing the burden of HIV among people with presumed TB and diagnosed TB (WHO, 2012).

The policy on collaborative TB and HIV activities provided guidelines for NDoHs, whereby a country could adopt the policy based on the country's context and needs and

develop their own model of integrated TB and HIV service delivery at the same time and location (Centers for Disease Control and Prevention, 2009). It enhanced and strengthened the traditionally independent programmes areas such as the TB control programme, HIV/AIDS programme and STIs programme to work together both at national and local level to reduce the prevalence of TB and HIV infection and mortality.

There are different models of integration available for programme areas to collaborate on TB and HIV activities. The WHO developed five models of integrated TB and HIV service delivery (WHO, 2012):

1. Entry via TB service and referral for HIV testing and care. This model can be achieved with minimal financial and logistic requirements, and joint training of health workers from both TB and HIV programmes. However, this model is not recommended in high HIV prevalence settings.

2. Entry via TB service and referral for HIV care after HIV testing. In this model the TB clinic provides HIV testing on site and refers a patient if HIV positive for HIV care. Counselling services should also be provided on infection prevention. The disadvantage of this model is that when the referral process fails, it can open the door for additional HIV transmission.

3. Entry via HIV service and referral for TB diagnosis and treatment of TB. In this model the HIV clinic refers the HIV-positive patient for TB screening, diagnosis and treatment. The disadvantage of this model is that when the referral process fails, it can lead to ongoing TB infection transmission and progression of the disease.

4. Entry via HIV service and referral for TB diagnosis and treatment after TB screening. In this model the HIV-positive patient is screened for TB and referred for TB diagnosis and treatment. IPT may be offered by the HIV clinic and sputum sample collection can

be done on site. However, this model requires proper infection control measures. WHO-recommended symptoms-based screening should be used for HIV-positive patients who are unlikely to have active TB and they should be provided with IPT.

5. TB and HIV integrated service provided as a single facility at the same time and location. In this model the service is provided by the same trained healthcare provider at the same visit, as a one-stop service. It includes activities such as TB clinics providing HIV treatment, and HIV clinics providing TB treatment, and provides integrated diagnosis and treatment for TB patients either in one or separate rooms. This model is particularly effective in settings with high HIV prevalence where most TB patients have HIV, and in settings where availability of human resources is a problem, and to avoid the need for referral. The concern for this model is the risk of nosocomial TB infection; therefore proper infection control measures at health facilities are crucial to minimise risk of spread of TB infection to HIV patients whose immune systems are compromised. However, integrated TB and HIV care support early detection and treatment of undiagnosed infectious TB and increase notification of smear-negative TB treatment, and success rates have been reported to be good (WHO,2012).

Different countries use one of the above mentioned models of care based on their needs and resources. For instance, the South African Government NDoH developed an integrated TB and HIV policy to provide TB and HIV/AIDS services at one facility, at one room by one health care provider.

The integrated TB and HIV model of care is primarily about changing the process of care and multidisciplinary collaboration, and anticipated increased patient-centeredness, enhanced coordination and improved continuity of care (Kodner, 2009). It is a strategy designed to curb the problems related to TB and HIV co-infection. According to the 2010

national guidelines for integrated TB and HIV services, all health services must provide care for TB and HIV clients at one stop (SANAC, 2011). In this case a client must get both TB and HIV services at the same clinic from one healthcare provider, which implies that the services for TB and HIV are integrated. The bottom line for these integrated models of care is to avoid missing TB and HIV cases, avoid lengthy client waiting times for services at different health stations, facilitate case finding and uptake of services, and avoid loss of cases to follow-up (Chehab et al., 2013).

2.3.3 Advantages and disadvantages of vertical and integrated models of care

The available evidence has shown that the traditional vertical model of care has many drawbacks to managing TB and HIV co-infection; most policies and practice commendations for management of TB and HIV co-infection were derived through consensus and not developed based on latest evidence (Uplekar & Raviglione, 2007). It has operational barriers because it separated national TB and HIV programmes, with corresponding separate personnel, funding streams, facilities and responsibilities. Other implications of the vertical approach compared to integrated services are high disruption rates and overburdening of the already strained TB and public healthcare services; and unfamiliarity of TB-trained health providers with HIV infection and diagnosis and vice versa (Uplekar & Raviglione, 2007).

Limitations in diagnosis of both diseases, particularly around issues of HIV counselling and testing, stigma and limited strategies for the accurate diagnosis of smear-negative TB, in treating both diseases concomitantly, include overlapping and drug interaction and toxicities, high pill burdens and IRIS, and separate TB and HIV culture and traditions. The advantages and disadvantages of the vertical approach are outlined below (Atun et al., 2008).

Advantages of a vertical model of care

- Resources targeted to specific high-priority health issues
- Defined goals and objectives, with measureable outcomes – high accountability
- Often very successful in limited timeframe (smallpox eradication, malaria, immunization programmes, especially polio, onchocerciasis, child health, HIV/AIDS)
- Develop a sound evidence base for interventions
- Good return on investment for donors
- May be desirable as a temporary measure if the health system is weak, rapid response is needed, to address a target group that is difficult to reach.

Disadvantages of a vertical model of care

- Weakens local health infrastructure, especially primary care
- Stand-alone programmes, have no place for health systems
- Competition for health care staff – focused programmes pay more (up to 300%) and have greater prestige
- Complex, multiple reporting structures and requirements
- Vertical programme infrastructure is less likely to be effective for conditions that have multiple causes or co-morbidity (i.e. TB/HIV/AIDS treatment centres), cardiovascular diseases
- Wastes resources, encourages duplication and inefficiency that leads to dissatisfaction
- Fragmented health care, limited communication between programmes and local health centres

- Inadequate engagement of local population in planning or implementation, hence they can distort priorities and undermine local ownership, and the responsiveness of local health services
- Competition for limited funding among various vertical programmes – pressure to continue programme regardless of outcomes and benefits
- Creates vested interest groups that may obstruct later reforms designed to integrate services
- Lack of sustainability and up-scaling – benefits and outcomes limited to target area and funding cycle
- Hinders the development of comprehensive approaches needed to tackle social inequality and the wider determinants of health
- Risk of negative spill-over effects on the health systems
- Depleting human resources from mainstream health services
- Diverting scarce managerial and clinical staff time to managing the programmes
- Fragmented health system monitoring and evaluation systems by creating duplicate structures
- Creating salary inflation and differential pay and incentive structure that adversely affects the motivation of staff in the mainstream health systems
- Undermining the trust between providers and users and stifling community- driven initiatives by imposing externally conceived top-down solution.

Adaptation of policy on integrated TB and HIV activities has been widely implemented in many countries. National and other stakeholders should adapt their policy with the latest updates to suit the best model of care (WHO, 2012). Adaptation of policy on an integrated TB and HIV model of care reduces HIV-associated TB mortality and

morbidity (WHO, 2012). A study from Uganda showed that integration of TB and HIV services improved TB treatment outcomes and led to earlier prioritisation of ART initiation (Hermans et al., 2012).

Advantages of integrated TB and HIV services include the increase in voluntary counselling and testing (VCT) among persons with TB, so that they access HIV care; and accelerated access to ART in co-infected patients (Atun, et al., 2010; Bygrave & Trivino, 2010). They integrate service providers with easier and quicker access to HIV care and ART, and reduce TB incidence and opportunistic infection among co-infected patients through the institution of co-trimoxazole and, IPT (Atun et al., 2008). Integration of TB and HIV services may provide more flexible and comprehensive diagnostic strategies for co-infected patients, facilitating an integrated approach to the management of co-infected patients. With an integrated service co-infected patients can be treated for two conditions simultaneously; the TB services' tradition of caring for large numbers of patients and experiences with standardised monitoring/tracking systems can be used for co-infected patients, with improved cure rates for patients with TB, improved ART adherence, and the benefits to staff from cross-training and increasing their skill set (Atun et al., 2008).

The advantages and disadvantages of the integrated approach are outlined below (Atun et al., 2008).

Advantages of an integrated model of care

- Sustainable – staff and facilities already in place in most countries
- Greater possibility of patient- and family-centered care over spectrum of life-cycle and health problems
- Integrated management of multiple determinants of health – nutrition, control of infection, preventive activities, health education, public health measures

- Centralized medical records and information
- Efficient use of scarce funding and resources
- Increase VCT among persons with TB, so that they access HIV care
- Accelerate access to ART in co-infected patients
- Integrated service providers with easier and quicker access to HIV care and ART
- Reduce TB incidence and opportunistic infections among co-infected patients, through provision of co-trimoxazole, ISP and other opportunistic infection prophylaxis
- Diagnose and treat TB earlier in co-infected persons
- More flexible and comprehensive diagnostic strategies for co-infected patients
- Co-infected patients can be treated for the two conditions simultaneously
- TB service traditions of caring for large numbers of patients and experiences with standardized monitoring systems can be used for co-infected patients
- Integrated approach can improve cure rates for patient with TB and improve ART adherence
- Benefits staff from cross-training and increasing skills set.

Disadvantages of an integrated model of care

- The PHC system is weak in many countries –
  - Poorly funded
  - Health workers poorly trained for scope of work
  - Inconstant supply of medications and supplies
- May develop deficiencies in some health interventions
- Difficult to document health outcomes – poor accountability
- Healthcare workers overwhelmed with multitude of interventions

- Integrated approach is too weak to respond on services urgently needed, such as a public health emergency
- Routinely used resources are too limited to be able to provide the services efficiently
- Some target client groups may not be accessible to the integrated health system for several reasons, such as stigma, or fear of legal action for those injecting drug users. Therefore, for these groups a vertical approach is more appropriate.

2.4 Care and treatment of TB, HIV and AIDS in South Africa

In South Africa TB and HIV/AIDS service integration and decentralisation of policy guidelines were adopted to address TB, MDR-TB and HIV-associated TB (NDoH, 2012). Policy guidelines were developed to facilitate implementation of the integrated TB and HIV/AIDs services. As of February 2011 integration of TB and HIV services has been taking place in public medical facilities (Chehab et al., 2013). Concurrent screening for TB and HIV in health care facilities and HIV VCT centres appears to be beneficial to both the patient and the health care providers (Uyei, Coetzee, Macinko & Guthmacher, 2011).

Although the South African health system is considered comprehensive, with integrated TB and HIV programmes including prevention of mother-to-child transmission (PMTCT), the programmes are not yet fully integrated into the health system (WHO, 2012). Available literature on collaborative TB and HIV activities locally (Loveday & Zweigenthal, 2011) and internationally (Gunnberg, Reid, Williams, Loy & Nuun, 2008) suggest that it is essential to look beyond policies and structures for integration and to address health system factors affecting collaborative activities.

HIV infection has been a major driving force on the scaling burden of TB management throughout sub-Saharan Africa (WHO, 2012). In South Africa HIV/AIDS treatment coverage of approximately 2.1 million was reported in 2013 – this number having increased by 33%, up from 1.4 million in 2012 – and in South Africa 14 800 children under the age of 15 years were receiving ART. The HIV/AIDS treatment coverage has increased to 3 million during 2014/2015 (WHO, 2014). This dramatic increase in ART coverage in South Africa is due to initiating ART earlier, at a CD4 count threshold of 500 cells/µl (instead of 350 cells/µl) since January 2015 (NDoH, 2014a). However, the NDoH (2014a) report acknowledges that the indicators do not give clear indications of enrolment, coverage and adherence. There is also potential for overestimation of retention in care, such as death and losses to follow-up by health facilities, which is often incomplete (NDoH, 2014a). According to research conducted by the Treatment Action Campaign (TAC), approximately 1 in 5 patients has left the ART programme, i.e. been lost to follow-up 3 years after starting ART, and currently it is not known how many patients are on ART and have an undetectable viral load (TAC + Section 27, 2013). In addition, the trend of retaining patients upon treatment failure is increasing year after year, and this is a concern as this may increase the mortality rate. On the other hand, it is a reality that the programme is struggling to adapt the increasing patient burden, and as the quantity increases, the quality goes down (WHO, 2015).

The reason for failing retention is first the incapacity of the health systems to face the huge scale of patients on ART: three million people on ART is a scale-up that is unprecedented in history, and is not matched by human and structural resources. While the achievements of the South African ART programme are undeniable, much remains to be done in terms of monitoring its progress (TAC + Section 27, 2013). To improve

outcomes the health systems have to adapt to the patient needs and numbers, and this requires a shift towards a more community-based model of care.

There was also an inability of the health services to provide adequate follow-up and treatment in a cost-inefficient way and poor use of health service resources. This may be regarded as an ethical and professional failure (Nglaze et al., 2011). Furthermore, the provision of basic health care must be addressed as a matter of urgency as well as raising awareness of TB, which is a weakness; there is also a need for proper governance and management in the health services, including the need for skills training and personnel development (Boule, Van Cutsem, Hilderbrand et al., 2010; Chehab et al., 2013; Fox & Rosen, 2010; Nglaze et al., 2011).

In general, while South Africa has shown some examples of success in the management of TB and HIV infection, particularly in the scale-up of the ART programme, there are still challenges in the integration of TB and HIV services. It is therefore the intention of this study to ascertain the level of implementation of the integrated TB and HIV/AIDS policy in a rural sub-district of the Western Cape.

2.5 Summary

Literature has shown that TB and HIV co-infections are high among 22 developing countries in the world, of which South Africa is one. The incidence rate of TB, MDR-TB, and TB and HIV co-epidemics are still very high in South Africa. However, South Africa is advancing with HIV/AIDS programmes towards achieving its target, particularly with the scale-up of the ART programme and of counselling and testing, but lagging behind with its TB control programmes. This is due to lack of collaborative activities between

the two national TB and HIV/AIIDS programmes to integrate the traditionally independent TB and HIV services in order to manage effectively the TB and HIV co-epidemics. Although South Africa adopted the WHO collaborative activities policy guidelines and developed a strategic plan for its implementation, the integration of TB and HIV services is not yet satisfactory to curb the problem. Furthermore, the literature has shown that a vertical model of care could not provide a solution to diseases with multiple causes (such as TB and HIV co-infection) through its specialised structure.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Chapter three discusses the research methodology; it begins by providing the justification for the choice of methodology and its motivation, the goal and a review of the objectives of the study. It discusses the research setting, target population, sampling and sample size, data collection and analysis, and further highlights the rigour of the study and ethical requirements that were taken into consideration.

3.2 Choice of research approach

Quantitative and qualitative methodologies are the two main competing paradigms. It is important to understand the theoretical background of these paradigms that guide and inform the choice of the methodology. Grove, Burns & Gray (2012) asserts that a paradigm is the fundamental model or frame of reference to organise our reasoning. Positivist thinkers adopt the quantitative scientific research method as a means of knowledge generation. According to the positivists, knowledge generation is essentially based on the quantification and description of parameters and the discernment of the relationships among them (Grove, Burns &, Gray, 2012). On the other hand, interpretivists adopt qualitative scientific research as an interpretive, naturalistic approach to subjective matter in an attempt to make sense of it, or to interpret phenomena in terms of the meaning people bring to them (Burns & Grove, 2009). Interpretivists argue that human behaviour, unlike that of physical objects, cannot be understood without reference to the meaning and purposes attached by human actors to their activities (Burns & Grove, 2009).

Neither the quantitative nor qualitative methods are intrinsically better than the other. The choice of methodology is determined by what the researcher wants to achieve or address. In this case, the researcher chose a quantitative research approach, because this method was suitable to the nature of this study, which was to analyse implementation of the integrated TB and HIV policy in a rural sub-district. Therefore, a quantitative research approach using a survey design was employed to collect and analyse the data.

3.3 Research design

The research design is a master plan of research that directs how the study is going to be conducted; it shows all the major parts of the research study, such as the sample group, measures, instruments and programmes that work together (Neuman, 2011). It can also be seen as a logical set of procedures that optimise the validity of data for a given research problem (Creswell, 2009). The research design gives direction to the study and data collection from the underlying philosophical assumption (Creswell, 2009). It describes phenomena, identifies and explains the relationship between variables, and generates knowledge in a variety of situations (Polit & Beck, 2010). A survey research design is used to investigate facts about people or other phenomena (Bowling, A. (2014). There are different types of design in the quantitative research approach, of which a descriptive survey design was employed for this study in order to collect data using a questionnaire and for analysing the data.

3.4 Research setting

The research setting was in a rural sub-district of district A in the Western Cape. The sub-district under research consists of eight towns, the nearest being approximately 50 km and the furthest 140 km from Cape Town metropole. The distance between the health facilities averages 50 km. The smallest communities are serviced by mobile clinics,

whereas the bigger towns have fixed clinic facilities. The central point of this sub-district has a secondary hospital where HIV-infected patients and those diagnosed with TB and AIDS are referred from the PHC facilities for further management. TB and HIV/AIDS statistics are collected from each town and then forwarded to the HIV/AIDS, STIs and TB (HAST) in the sub-district office.

The population of these communities is mostly made up of unskilled seasonal workers. TB, HIV and AIDS and substance abuse are indicated as major health problems in the area (Day, Gray & Budgell, 2011). The percentage of TB cases with known HIV status in the Overberg district wherein the sub-district under study is situated was 91.7% in 2014, a bit less than Cape Town district which was the highest at 98.7%. However the TB and HIV co-infected client on ART in the same district which includes the sub-district under study was 60.2% in the same year (Massyn, Peer, Padarath, Barron, Day, 2015). There were eight health facilities, of this seven were community health centers, clinics and one-day hospital were used for study. This decision was based on the size of the clinics in terms of patients' head count and activities undertaken in the clinics in relation to the study focus. The range of the nurses' categories was chosen as the TB and HIV services are carried out at different levels of care

3.5 Study population

The study population is the set of all cases of interest, from which a subset of the population is selected to represent the whole population (Burns & Grove, 2010). The target population for this study comprised all categories of nurses (enrolled nursing assistants, enrolled nurses and registered nurses) working in the sub-district health facilities under investigation (N=71). The accessible population was drawn from all health facilities and the secondary hospital. The decision to include all of the nurses was

based on their involvement in the TB and HIV/AIDS services at different levels of the continuum of care. For example, TB screening can be conducted by all categories of nurses, whereas initiation of treatment can be done only by registered nurses.

3.6 Sampling and sample size

Sampling is the process of selecting a portion or all of a population to represent the entire population, while a sample is a subset of the population (Polit & Hungler, 2008). The underlying interest of sampling is to make inferences from samples to populations in understanding unknown facts about the population (Christensen, Johnson & Turner, 2011). In this study the study setting is well defined and the total number in the target population was small, thus 100% or a (census) sampling technique was used. The inclusion criterion used to choose the participants was that they should have been working in the health facilities within the selected sub-district for at least 3 months. This was guided by the researcher's assumption that the participants were well versed in the practices regarding implementation of the TB and HIV/AIDS integrated policy after 3 months' exposure to the environment. Therefore, out of the total of 71 nurses working in the TWK health facilities, 60 were eligible to participate in the study. Thus, the recruited sample size of the study who met the inclusion criteria was 60 (N=60).

3.7 Instrument

The questionnaire was designed and developed using the National Strategic Plan on HIV, STIs and TB, 2012-2016 (NDoH, 2012a). The strategic plan was chosen because it gives clear directives about TB and HIV service integration and it describes the policy guidelines for diagnosis, treatment and care of TB and HIV/AIDS as a one stop service (NDoH, 2012a). Therefore the content was used as a standard of measure for implementation of TB and HIV integrated services. This was done in consultation with a

statistician to maximise the chance of usability and accuracy, and to reduce any ambiguity of the questionnaire.

The questionnaire (Annexure A) was developed in the English language, with the understanding that all of the nurses can speak and write English as they have matric as a qualification. The questionnaire was designed to collect nominal data, with four sections (I-IV). The first section was about demographic information, with six multiple-choice questions; and the second section was related to policy documents, with three multiple-choice questions. The third section was about HIV care services provided to TB patients, with five questions (one question was a Likert scale and the rest were multiple choice). The last section was related to TB care services provided to HIV patients, with 11 questions (one was Likert scale, and the rest were multiple-choice). The intention of the measures where to determine the type of activities that participants did in relation to what is expected of them as defined in the strategic plan.

3.8 Pilot study

Burns and Grove (2010) define a pilot study as a minor study that is based on a proposed study to investigate the feasibility of the larger study, and to improve or refine the research instruments before the actual study is conducted. In this study a pilot study was conducted on 10 participants from health facilities who were not included in the actual sample but who dealt with the same phenomenon under study. The results of the pilot study showed that the participants understood all the questions without any problems as all the questions were answered. Based on the results of the pilot study, modification or changes to the content of the questionnaire was not necessary, meaning that its content, wording and language itself were simple and clear for the participants.

3.9 Data collection

Data collection refers to the methods used to gather the information which is needed to achieve the study objectives (Burns & Grove, 2010). It also suggested that increasing contact with participants can have a significant effect on return rates of the survey questionnaire Bryman (2012). Data were collected through the use of self-reporting questionnaires, with the assistance of trained field workers when the need arose. The questionnaires were distributed to the study participants by two field workers who were trained on data collection and specifically on the questionnaire. The two field workers divided the eight research sites equally among themselves and distributed the questionnaire and the consent form to each participant by hand. The role of the field workers was to minimise the space between the researcher and the participants, and thus facilitate completion of questionnaires to ensure a good response rate.

After the field workers explained the purpose of the study and clarified any questions raised by participants, the participant signed the consent form (Annexure B) and received the questionnaire to complete. The participants were given one week to complete the questionnaire and return it, which they agreed to. A follow-up reminder email and telephone call was used to increase the response rate and to make ensure that they had no problems in completing the questionnaire. The field workers went back and collected the completed questionnaires individually. However, the time frame for completing and returning the questionnaires took more than the planned one week and in most cases the participants took more than three weeks to return the questionnaire. This was mainly due to their busy schedules during working hours and not wanting to commit to completing them out of working hours. Additionally logistical issues such as lack of transportation for data collectors to travel to some of the venues were the participants where based in the rural areas contributed to the delay in data collection.

3.10 Data analysis

Data analysis is systematic organisation and synthesis of research data (Polit & Beck, 2010). The returned questionnaires were first checked that they were completed. Four questionnaires were not properly completed – the chronological order of the question numbers did not match with the answers given. This problem was created when the participants jumped to the next question, but then applied the answer to the question they skipped or skipped to. Therefore, the incomplete questionnaires were discarded. A code was given to each questionnaire in preparation for data analysis. The aim of quantitative data analysis is to generate tables, frequencies and percentages and to interpret these (Polit & Beck, 2010; Biddix, 2014). Data were coded and systematically reorganised into a format that is machine readable and easy to analyse in a computer. The raw data were cleaned, coded and ready for entry into the computer software Statistical Package for the Social Sciences (SPSS version 22) program. The data were entered into the computer software and double-checked for accuracy of the data entry. A biostatistician assisted with the data analysis.

A descriptive statistical analysis method was used to analyse the data. Descriptive measures such as frequency tables, averages and percentages, were generated to show the occurrence of different observations. The demographic information on the participants was presented as a percentage and summarised in table format. Information on practices of integrated TB and HIV policy were presented in the form of frequencies using bar graphs and pie charts to represent the results.

3.11 Reliability of the study

Reliability refers to the degree to which the instrument can be depended upon to yield consistency or stability of results when used or replicated repeatedly over time on similar persons or situations (Burns & Grove, 2010; Biddix, 2014). In the other hand, Grove, Burns & Gray (2012) in describing reliability states that different researchers doing a reliable study on the same phenomena would arrive at the same conclusions, or at least the same evidence. In other words, reliability research can be replicable. In this study reliability was ensured through pilot testing of the instruments, using a comprehensive literature review to develop a robust data collection instrument, and consultation with a statistician. Five participants was selected for pre-test and post test to determine the internal consistency of the instrument. The test was administered to participants two times. The second test (post) was done five days after the first test was done. The score for the first test was similar with the score for the second test for each participant. Cronbach's alpha test- re-test result was 0.80. A reliability coefficient of >0.70 is satisfactory and acceptable to determine the internal consistency of reliability, and this study had a coefficient of 0.80, meaning the correlation of test and re-test was stronger enough to determine the internal consistency of reliability is acceptable. Furthermore, the instrument was developed in consultation with a research expert and biostatistician.

3.12 Validity of the study

The validity of the instrument was ensured using pilot testing of the questionnaire on a target population. Validity refers to the truth or accuracy of the research instrument (Kumar, 2011). A pilot study was conducted on 10 participants who were not part of the actual study. The results of the pilot test assisted in determining the accuracy and consistency of the instrument in measuring what it was supposed to measure. Content validity is the degree to which the contents of a test or survey match the contents they are

intended to measure. The typical procedure to assess content validity is that the question or item cover all full range of issues and balanced each aspect with adequate representation of question or item (Kumar, 2011).

The expertise of a statistician was consulted to review the instrument in terms of its representation and coverages of the questions such as question related to the availability of TB and HIV/AIIDS policy guidelines in the health facilities and its utilization, question related to the types of care services provided to HIV/AIDS patient at TB clinic and the type of care services provided to TB patient at HIV/AIDS clinics. In this regard all the questions were balanced and had adequate representation to cover the issues in order to reflect the objectives of the study that the instrument supposed to measures. External validity refers to the extent to which results of a study can be generalized to the world at large (Biddix, 20140. The goal of this study was to make inferences about how integrated TB and HIV/AIDS activities work in a small rural district, and the results of the study can be generalize to the population from where the data was collected, but not to generalize the results to the general population due to small sample size.

3.13 Ethical considerations

This study is part of the larger project "Intervention strategies to improve the implementation of TB and HIV policies in a rural sub-district of the Western Cape", and the project has ethical clearance from the University of the Western Cape Senate Research Committee (Reg. No. 13/6/39) [Annexure C]; after scrutinising the research proposal the Provincial DoH granted permission to use the health facilities for study (Ref. RP150A/2013) [Annexure D]. The researcher negotiated with each health facility manager on how to contact the health personnel and arrange a convenient time to meet them without interrupting normal activities. An information sheet (Annexure E) was

given to the health personnel and the purpose of the study and implications of participation were explained to them.

All questions and doubts were clarified and they were informed that no names or any identification would be mentioned throughout the process of the study and beyond, instead code would be used. This process and issues of confidentiality was also stipulated in the written consent form. The privacy and dignity of the participants were respected, and their judgements and opinions remained strictly confidential. Names and other identifiers were changed to protect the privacy of the participants. Accordingly, in this study their judgements and opinions remain strictly confidential, and the dignity of the participants was respected.

The participants had the right to choose voluntarily whether to participate or not without any risk incurring. Information was given to them indicating that they had the right to withdraw from the study at any time, without any negative consequences. They were informed that the data would be stored in a locked cabinet. After the soft data were transferred onto the computer and protected with a password, the hard copies of the data were then destroyed. The participants were also informed that the outcomes of the study would be published in a peer- reviewed journal; however, their identification would still remain anonymous. The researcher, research supervisor and the statistician were the only people who could access to the data.

Participants were informed that there were no individual benefits for participating in the study, but that the outcome will assist the bigger project to develop a strategy that would benefit the whole community in the area. Participants were also assured that taking part in the study would have no negative effects on their jobs. The consent form was given to the participants and they were asked to indicate their willingness to participate in the study by signing it. All participants all signed the consent form. The researcher's contact

details were provided to the participants so that they could ask questions for further clarification where necessary.

CHAPTER FOUR

RESULTS

4.1 Introduction

Chapter four presents the results of the study, which includes the demographic information on the respondents and all of the responses that addressed the three objectives of this study. The results of the study clearly confirmed that while integration of TB and HIV services is recommended by the national and provincial policy guidelines, in reality most services are still vertically run (with one service per clinic or consultation room).

4.2 Demographic information

About seventy one (N=71) potential respondents were identified as the target population for the study, of whom 11 were excluded because they did not meet the study criteria. Sixty respondents (60) who met the inclusion criteria were recruited and a total of 60 questionnaires and consent forms were distributed to them. Forty four (N=44) questionnaires were completed and returned, giving a response rate of 73.3%. However, out of 44 questionnaires completed, 4 questionnaires were excluded from analysis due to incompleteness. Of those who completed the questionnaires, 38 (86%) were female. Among the respondents, 20.5% were between the ages of 25–34 years, 25% and 38.6% were between the ages of 35–44 and 45–54 years respectively, and 15.9% were in the 55 years and over category.

In terms of educational achievements, the majority or 43.2% (n=19) of the respondents had a diploma in nursing, 22.7% (n=10) had a degree in nursing, 15.9% (7) had

completed matric and trained as enrolled nurse assistants, and of the remaining 4.6% (*n*=2), one had completed Grade 8 and the other had completed 10 before they got trained as an enrolled nurse assistant. In terms of their categories of registration with the South African Nursing Council, 61.3% (27) were registered nurses, 20.5% (9) were enrolled nurses, 18.2% (8) were enrolled nursing assistants. In terms of respondents' working place at the time of data collection, 38.6% (*n*=17) were working at community health centres that provide 24-hour services which include maternal care, while 36% (*n*=16) were working in clinics that provide services for 5 days a week and 8 hours per day. Additionally, 22.7% *(n*=10) were working in the hospital situated in the sub-district. Table 4.1 below gives detailed information on the demographics of the respondents.

Table 4.1: Demographic characteristics of respondents

Demographics	
Gender	**N = 44 (Missing: 4 -- 9.1%)**
Male	2 – 4.5%
Female	38 – 86.4%
Age group (yrs)	**N = 44**
25–34	9 – 20.5%
35–44	11 – 25%
45–54	17 – 38.6%
Over 55	7 – 15.9%
Job title	**N = 44**
Professional nurse	27 – 61.3%
Enrolled nurse	9 – 20.5%
Enrolled nurse assistant	8 – 18.2%
Workplace	**N = 44 (Missing: 1 – 2.3%)**
Clinic	16 – 36.4%
Community health centre	17 – 38.6%
Hospital	10 – 22.7%

The results that follow are organised and presented according to the objectives of the study.

4.3 Objective one: Analysis of the implementation of HIV care services for TB patients as a component of the integrated TB and HIV programme services at HIV clinics

For an HIV/AIDS clinic to be seen to offer integrated services, it is recommended that while HIV and AIDS care is being given to the patient, TB care services should also be offered. This implies that a co-infected patient who arrives at an HIV/AIDS clinic or consulting room should not only receive care pertaining to HIV only but also TB treatment and care. The HIV care services are expected to provide activities pertaining to the management of HIV patients co-infected with TB, AIDS patients with suspected TB infection (patients presenting with signs and symptoms of TB), as well as prevention of TB infection among those patients with only an HIV infection and those with AIDS-related disease. These activities include screening for TB in patients who are infected with HIV, initiating IPT and co-trimoxazole, and the correct time to initiate ART for patients with co-infection of TB and HIV. Both TB and HIV care should be provided by the same trained healthcare provider during the same visit, on the same day and in one room (a one-stop service).

The results for this objective will be presented according to the following sequence: general management of patients co-infected with TB and HIV; specific expected practices, that include counselling information on co-trimoxazole given to TB and HIV co-infected patients at the HIV clinic; conditions in which TB prophylaxis could not be given to patients co-infected with TB and HIV; management of AIDS patients who developed TB while on ART; and treatment of TB for HIV-positive pregnant women.

4.3.1 Management of patients co-infected with TB at HIV clinic

Different activities, as stated in the National strategic Plan on HIV, STIs and TB (NDoH, 2012a) are supposed to be undertaken in an HIV clinic as an indicator for integration of services. The respondents were asked to indicate the activities that they did and offering of counselling support was reported by the majority of respondents (80%), while 64.3% stated that they provide nutritional assessment, 71.4% reported that they provide Pap smears, and 64.3% provide STI screening services and the rapid plasma regain test to TB and HIV co-infected patients. Sixty-nine percent (69%) of the respondents reported that they do provide prophylaxis to prevent opportunistic infection. However, 14.3% of the respondents were unsure about the provision of routine specific aspects of TB and HIV services. Table 4.2 highlights management of the TB and HIV co-infected patient.

Table 4.2: Management of patients co-infected with TB and HIV (%)

	Rapid plasma reagin	Pap smear	STI screen	Co-trimox.	Dx & Mgt OI	Nutritional assessment	Counselling Support
Yes	64.3	71.4	64.3	69	69	64.3	81
No	21.4	14.3	21.4	16.7	16.7	21.4	7.1
Unsure	14.3	14.3	14.3	14.3	14.3	14.3	11.9

Dx=diagnosis; Mgt OI = management of opportunistic infection

4.3.2 Counselling information on co-trimoxazole given to TB and HIV co-infected patients

In the integrated TB and HIV services, co-trimoxazole prophylaxis should be given to HIV- infected patients, including those co-infected with TB, to prevent opportunistic infections which these patients are at increased risk of developing. In responding to questions on the information given to patients pertaining to co-trimoxazole as

prophylactic treatment during counselling sessions, over half of the respondents (54.8%) reported that they correctly informed the patients that co-trimoxazole is being used to prevent pneumonia and other infections, with 33% reporting being unsure about what is included in such sessions and 52.4% reporting giving inaccurate information pertaining to the duration of treatment and its use. Table 4.2 shows counselling information on co-trimoxazole for TB and HIV co-infected patients as an implementation practice at the health facilities in this study.

Table 4.3: Counselling on co-trimoxazole (%)

	Prevents pneumonia	It is taken for a short time	Prevents rashes and others
Yes	54.8	14.3	14.3
No	11.9	52.4	52.4
Unsure	33.3	33.3	33.3

4.3.3 Managing co-infection of TB and HIV patients who are not eligible for prophylactic TB therapy

In the integrated TB and HIV services it is expected that HIV-infected patients should be routinely screened for TB infection and given prophylaxis to reduce the risk of infection. However, there are certain conditions in which TB prophylaxis cannot be given. In responding to the question about giving TB prophylaxis, 44.7% and 28.9% of the respondents agreed that TB prophylaxis could not be given when the patient has liver disease and alcohol abuse respectively. However, 44.7% were unsure about when TB prophylaxis should not be given, as demonstrated in Table 4.4 below.

Table 4.4: Patients not eligible for prophylactic TB therapy (%)

	Liver disease	Alcohol abuse	Are on ART or about to start ART
Yes	44.7	28.9	2.6
No	10.5	26.3	52.6
Unsure	44.7	44.7	44.7

4.3.4 Management of patients who develop TB while on ART at HIV clinic

As illustrated on Table 4.5, in measuring clinical practice on management of TB while the patient is on ART, 52.4% of respondents indicated that ART should be continued if TB developed while a patient is on ART, and 26.2% agreed to continue with the same regimen. Thirty-one percent (31%) of the respondents were unsure of what is to be done in cases such as this, highlighting the potential for a practice that may be contrary to the policy. The 2014 TB management guidelines state that the same regimen is to be continued for patients on Efivarenz for those on the first-line regimen and who developed TB.

Table 4.5: Managing patients who develop TB while on ART

	Discontinue treatment	Continue treatment	Continue same regimen	Put on a second-line regimen
Yes	6.8	52.4	26.2	11.9
No	61.9	16.7	42.9	57.1
Unsure	31	31	31	31

4.3.5 Treatment of TB for HIV-positive pregnant women

On the question regarding which treatments the facility offers to pregnant women, just over half of the respondents (52.3%) reported that INH is given to pregnant women, and 56.8% agreed that streptomycin is not given to pregnant women (Table 4.6). However, 43.2% of the respondents were unsure on how TB is treated in pregnant women. More than twenty-seven percent (27.3%) of the respondents were also not sure about the practice in their facility when managing babies whose mothers have TB.

The National Consolidated Guidelines for prevention of Mother-to- Child Transmission of HIV (PMTCT), and Management of HIV in Children, Adolescents and Adults 2015 (NDOH, 2015) recommends regular screening and conducting of appropriate investigations. No BCG vaccination is to be given to babies that present with symptoms, and streptomycin should not be given to TB and HIV co-infected pregnant women (NDOH, 2014a).

Table 4.6: TB medication for pregnant women (%)

	INH	Rifampicin	Streptomycin
Yes	52.3	11.4	0
No	4.5	45.5	56.8
Unsure	53.	43.2	43.2

4.4 Objective 2: Analysis of the implementation of TB care services for HIV patients as a component of integrated TB and HIV programme services at TB clinics

For a TB clinic to be seen to offer integrated services it is recommended that while patients who are diagnosed with TB are being cared for, HIV care services should also be

offered. The National Strategic Plan on HIV, STIs and TB (SANAC, 2011) provides guidance on the integrated services whereby TB clinics should conduct HIV counselling, testing and treatment for TB patients who are infected with HIV. However, to analyse implementation of integrated policy guidelines in this service, the general practices pertaining to the implementation of the TB guidelines needed to be measured.

This section is sequenced as follows: general practices pertaining to TB control and management in a TB clinic or ward; management of TB patients diagnosed with HIV with a CD4 of < 100/µl at TB clinic; and counselling of patients on TB treatment and ART.

4.4.1 General practices pertaining to TB control and management

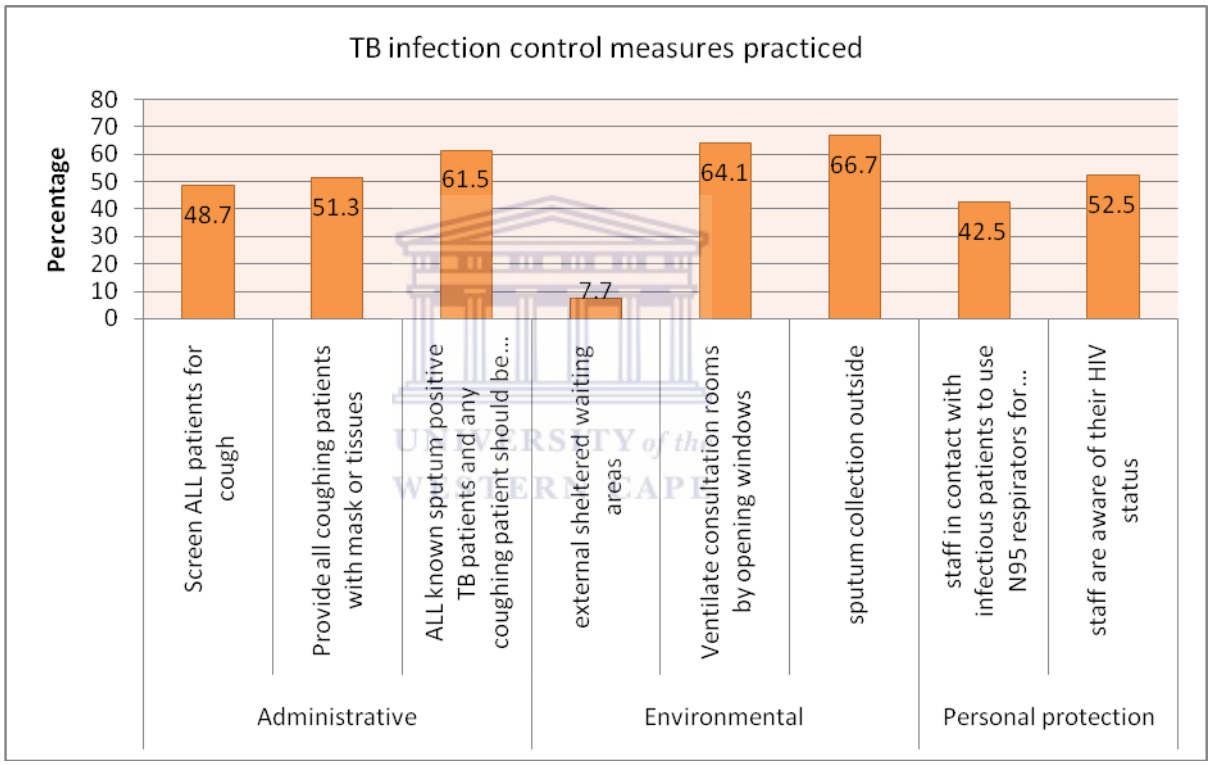
TB infection control measures are important in the TB clinic or hospital, as they are key in minimising nosocomial spread of infection, especially to the already immune compromised patients with HIV infection. Hence the researcher analysed some of the general practices in terms of the TB infection control measures, that could inform the integration of TB and HIV practices. The activities measured to indicate general practices pertaining to TB control and management were infection control practices, storage of sputum practices, TB diagnosis confirmation, practices that increase effectiveness of DOTS, classification of TB defaulters and relapse cases, as well as practices at the end of the 3-month intensive phase of TB treatment, and reasons for transferring patients to a TB hospital.

4.4.1.1 Infection control practices

TB infection control measures are an important aspect of the integrated TB and HIV services. In order to ensure the successful implementation of the National Strategic Plan on HIV, STIs and TB (NDoH, 2012a), TB infection control and correct

and consistent implementation of TB control measures are essential to prevent spread of infection. The South African National TB Management Guidelines (NDoH, 2014b) provide three categories of TB infection control measures, namely administrative, environmental and personal protection, with a number of measures to be implemented. Aspects of these three measures of infection control are indicated in Figure 4.1, and more of the infection control measures are included in the description below.

Figure 4.1: Practice of TB infection control measures (%).



When the environmental infection control practices were analysed; 66.7% of the respondents indicated that they collect sputum outside to prevent the spread of infection, 64.1% kept the windows open to ventilate the consultation rooms, and 7.7% reported that the waiting areas for patients are situated outside in an open space. On analysis of administrative infection control measures it was found that 48.7% respondents do screening of all patients for cough, 51.3% provide all coughing patients with masks, and

61.5 % reported that patients with cough and those with positive sputum are seen first. Sixty-nine per cent of the respondents use a fast-tracking system to reduce patient contact time.

On analysis regarding personal protection, the majority of the respondents (88.1%) reported performing hand washing after handling sputum as a way of infection control, while 83.3% do sputum collection away from others to avoid the transmission of infection. More than fifty-two percent (52.5%) of the respondents are aware of their HIV status, and 42.5% reported that those staff who are in contact with infectious patients use an N95 mask for personal protection. Additionally regarding personal protection, 73% of respondent stated that they do not notify the neighbours about TB infection control, with only 16.7% that did notify the neighbours.

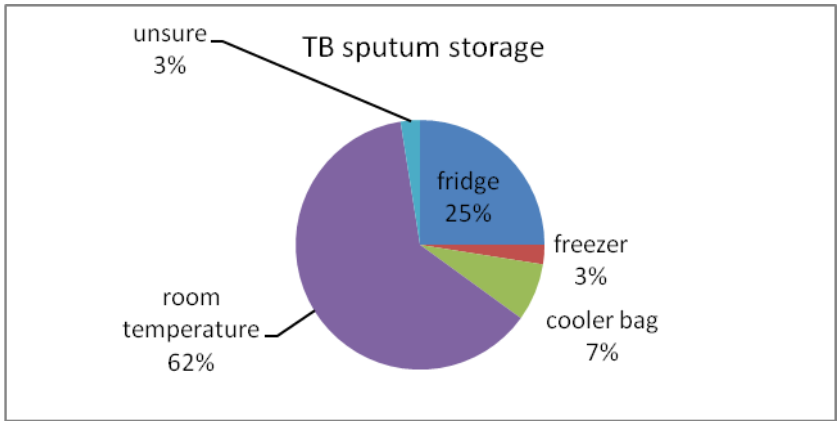
4.4.1.2 Storage of sputum practices

Collected sputum is sent from the health facility to the laboratory; in most rural areas the laboratory may not be at the facility, requiring the sputum to be sent outside of the area and often far away. Hence there is a necessity for proper storage of sputum when transport is not immediately available, so as to obtain accurate results. When the practices pertaining to storage of sputum were analysed, the respondents gave contradicting answers, as indicated in Figure 4.2 overleaf.

The majority of respondents (62%) reported that sputum should be stored at room temperature, 25% stated that it should be put in the fridge, 3% that it should be put in a freezer, and 7% that it should be put in a cooler bag. Three percent (3 %) of respondents reported that they were unsure about the storage of sputum. Some of the practices were contradictory to the 2014 National TB Management Guidelines (NDoH, 2014b) that

recommend storing the sputum in a fridge and never in a freezer if transport is not available, and using a cold and dark container during transportation.

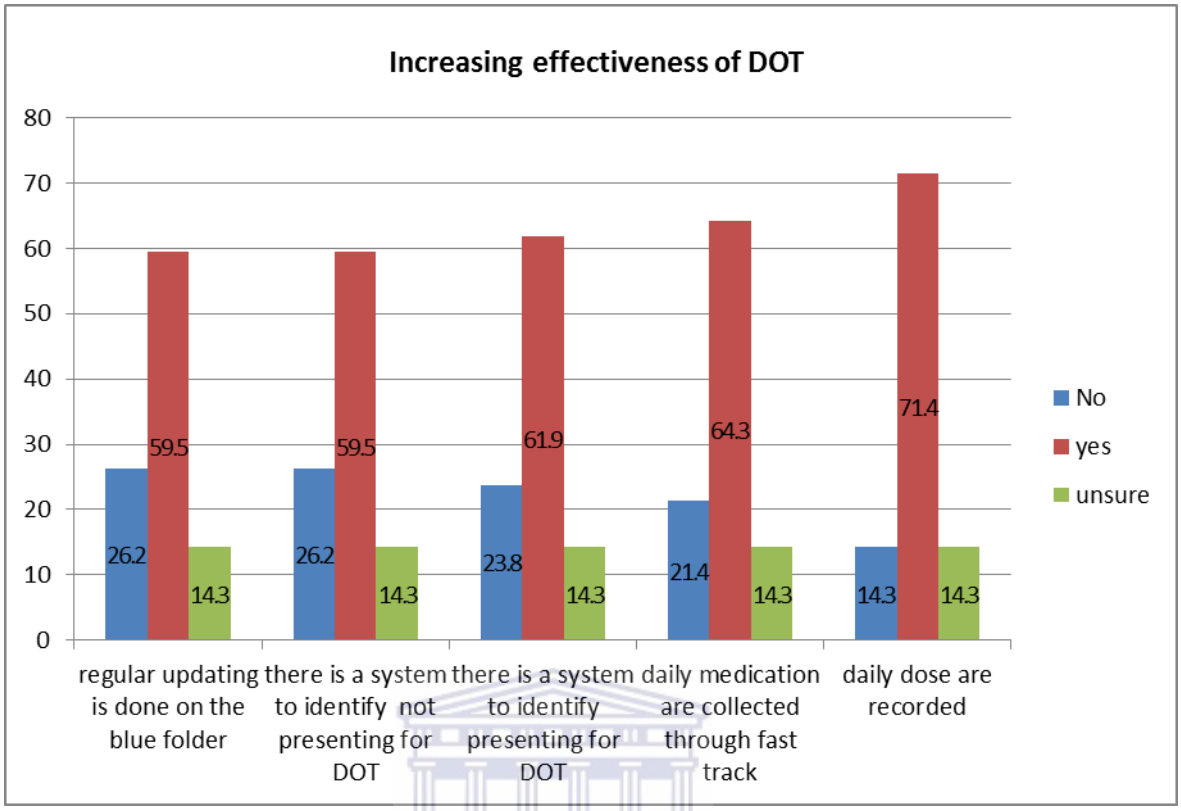
Figure 4.2: Storage of TB sputum.



4.4.1.3 Practices to increase effectiveness of DOTS

According to the National TB Management Guidelines (NDOH, 2014b) a number of activities pertain to practices followed to increase the effectiveness of DOTS. In analysis of the activities to be performed to increase the effectiveness of DOTS, respondents were asked to choose from a list of activities. In response to this question most (71.4%) respondents reported recording of daily doses taken on client-held green cards; medication collection through fast-tracking to reduce waiting time is in second place at 64.3%; and 61.9% indicated that there was a system to identify missing appointments for DOTS. Fifty-nine and half percent (59.5%) of the respondents indicated both regular updating of blue clinic folders and identifying clients presenting for DOTS who are also due for sputum collection. In all categories of the above activities, 14.3% of respondents were unsure about the proper activities to follow pertaining to practices to increase effectiveness of DOTS (Figure 4.3).

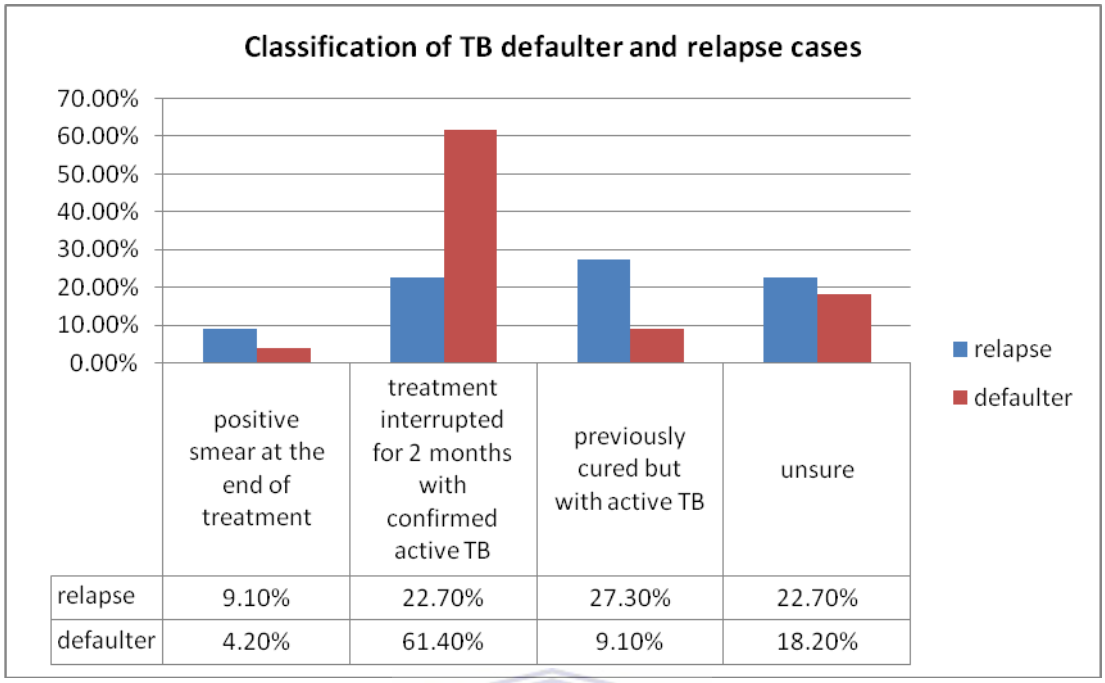
Figure 4.3: Practices for increasing effectiveness of DOTS.



4.4.1.4 Classification of TB defaulter and relapse cases

Regarding analysis of the classification of defaulters and relapse cases, 61.4% of the respondents were able to classify the TB defaulter cases based on the criterion of the client with confirmed active TB interrupting treatment for two months, while only 27.3% were able to classify the relapse cases, with 22.7% and 18.2% reporting that they were unsure about how to classify the relapse and defaulter cases respectively (Figure 4.4).

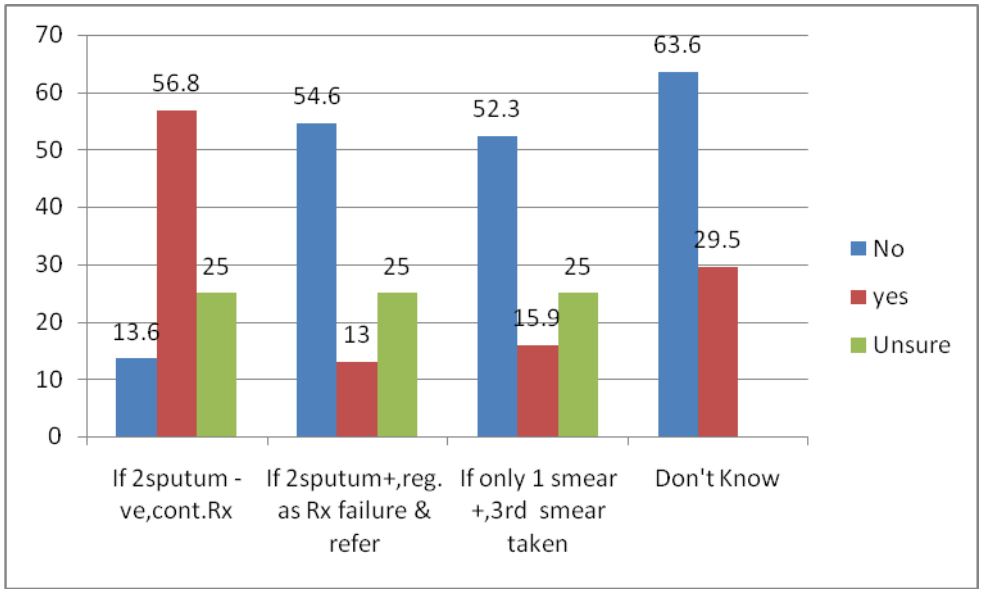
Figure 4.4: Classification of TB defaulters and relapse cases.



4.4.1.5 Practices at the end of 3-month intensive phase of TB treatment

In respect of the question as to what is to be done at the end of 3 months of the intensive phase treatment of TB infection, various options were given. Closer to fifty-seven percent (56.8%) stated that if two checks are negative, then continue with the treatment; 13% stated if two sputum checks are positive, then the client is registered as a treatment failure; 15% indicated that if one sputum check is negative and the second one is positive, then a third check is done. Of the respondents, 25% reported being unsure of the practice at the end of the 3-month intensive phase for TB treatment. There seems to be a low number of nurses aware of the correct practice, and hence they are not applying the policy properly. Figure 4.5 highlights the percentages of nurses that agreed with possible options of what is to be done at the end of the intensive phase.

Figure 4.5: Practice at the end of 3-month intensive phase of TB treatment (%).

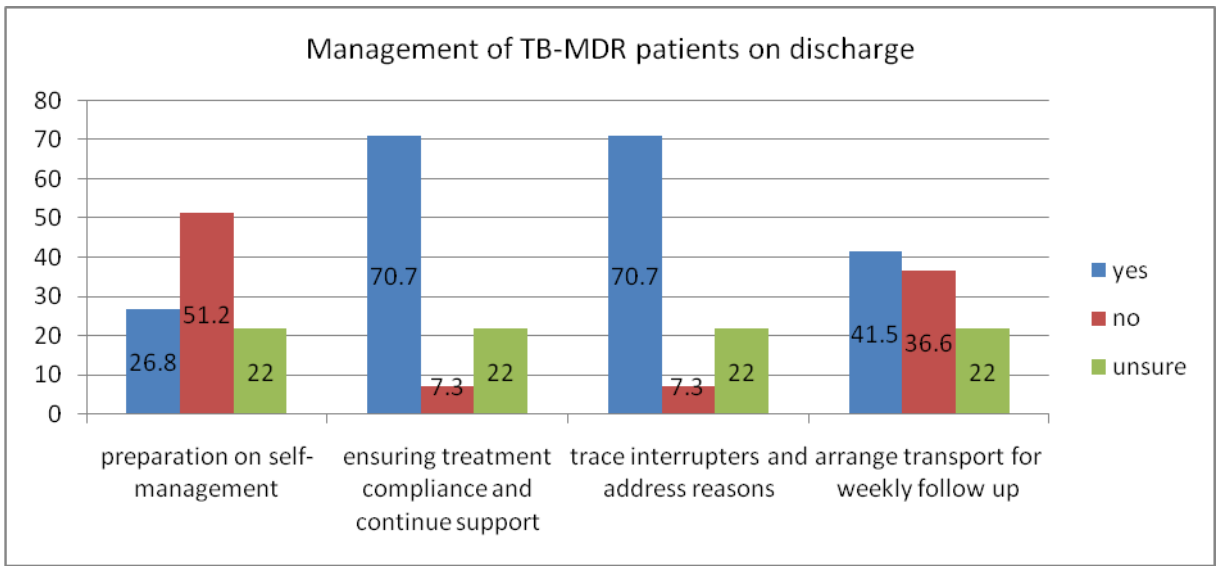


4.4.1.6 Reasons for transferring patients to TB hospital

As illustrated in Figure 4.6, the majority (88.1%) of respondents indicated that they transfer patients to the TB hospital when they are too ill, while 42.9% indicated that they do so when the supported care can't be achieved, and another 35.7% refer because re-treatment and streptomycin cannot be managed at clinics, while 54.8% said that they do not refer patients for re-treatment and streptomycin. Over 33.3% indicated that they refer patients when they are uncooperative, while over 57% indicated they do not do so.

In terms of the follow-up care and support for MDR-TB patients, 70.7% of respondents stated that they continue to provide support to ensuring compliance of treatment and trace interrupters, while 22% were unsure of how to deal with MDR-TB follow-up care. Twenty six percent (26%) stated that they do prepare patients for self-management after discharge, but 51.2% reported they do not prepare patients for self-management to avoid future monitoring.

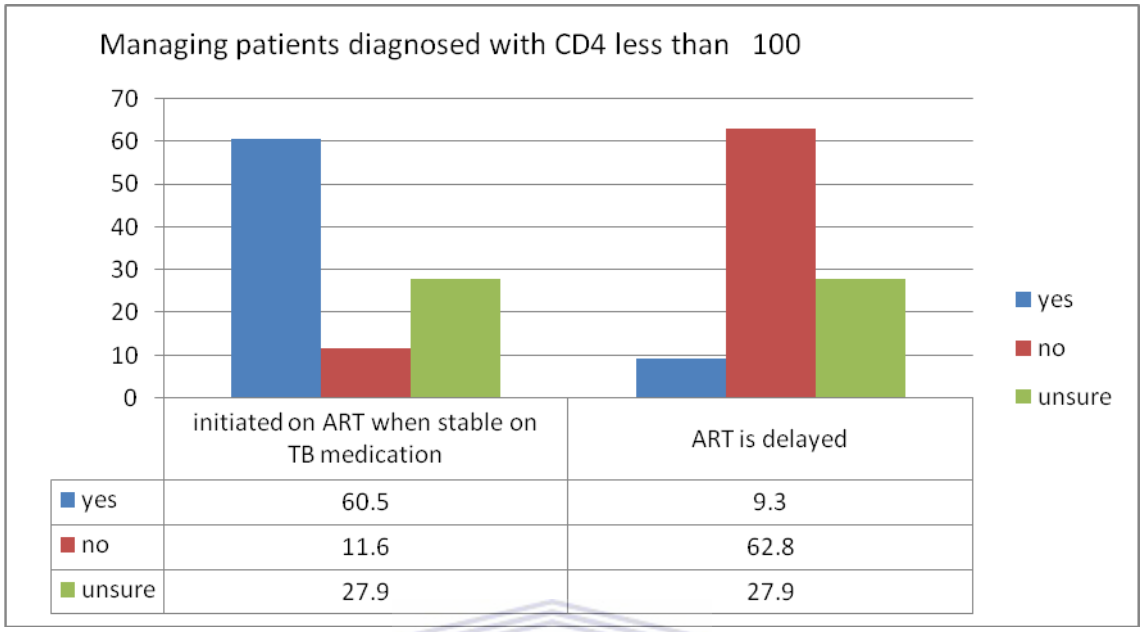
Figure 4.6: Management of MDR-TB patients on discharge.



4.4.1.7 Management of TB patients diagnosed with HIV with a CD4 <100/µl at TB clinic

As the component of the integrated TB and HIV services at the TB clinic, the respondents were asked the following question: What is the current practice at your health facility if a client is diagnosed with TB before starting ART and with a CD4 count of <100/µl. The majority of respondents (60.5%) stated that they would initiate ART when the patient was first stable on TB medication, while 9.3% chose to delay ART initiation. However, 27.9% were still unsure about when to initiate ART when the CD4 count is <100/µl (Figure 4.7).

Figure 4.7: Managing TB patients diagnosed with HIV infection and a CD4 count <100/µl (%).

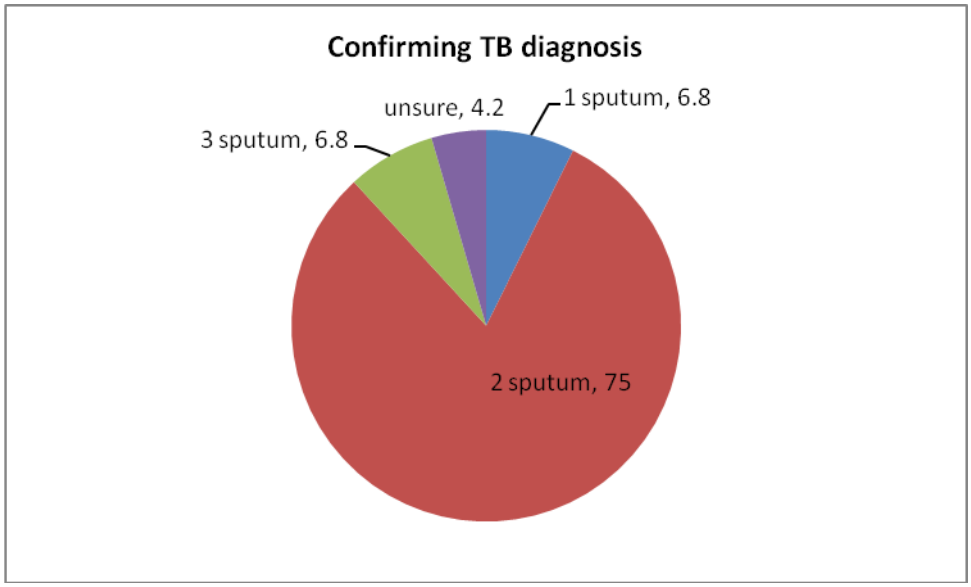


	initiated on ART when stable on TB medication	ART is delayed
yes	60.5	9.3
no	11.6	62.8
unsure	27.9	27.9

4.4.1.8 TB screening practices

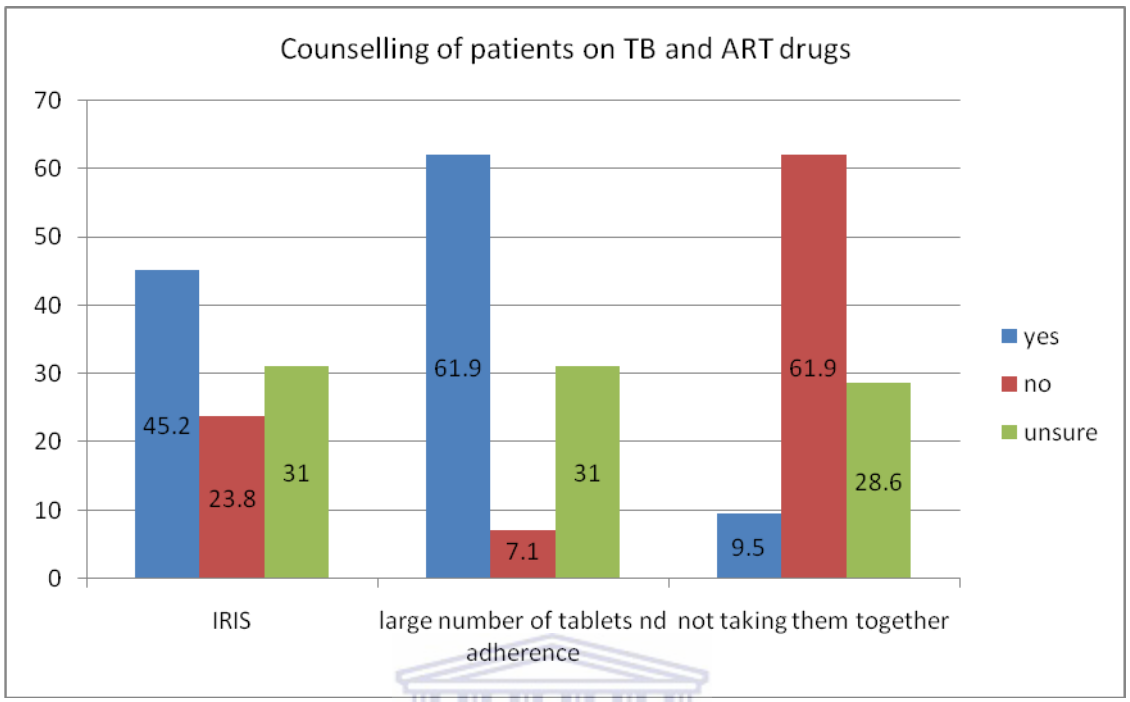
Proper processes on how to confirm a TB diagnosis are indicated in the National TB Management Guidelines (NDoH, 2014b), which states that two sputum specimens are to be collected an hour apart and examined for bacteriological confirmation of disease. At least one sputum specimen testing positive on acid-fast bacilli is enough to diagnose TB and start treatment. When the proper process of TB diagnosis was analysed, 75% of respondents identified two sputum specimens to be collected for laboratory testing as the correct process to confirm TB diagnosis, whereas 6.8% reported that third sputum specimen must be collected, and 4.2% reported that they are unsure about the process (Figure 4.8).

Figure 4.8: Confirming TB diagnosis through sputum examination (%).



4.4.1.9 Counselling of patients on TB treatment and ART Patients with dual TB and HIV infection are expected to take treatment for both, and this can result in an increased number of tablets that have to be taken, with poor adherence to treatment – hence counselling of the patients is crucial. The respondents were asked following question: What should clients on TB medication and ART be counselled about regarding specific problems they are likely to encounter? Aspects included in the counselling sessions related to TB treatment and ART. Of the respondents 61.9% counselled the clients mainly on the large number of tablets to be taken, and 45.2% counselled them on IRIS. The analysis also shows 28.6% of respondents reported being unsure about the aspects to be included in such sessions (Figure 4.9).

Figure 4.9: Counselling of patients on TB and ART drugs (%).



IRIS= Inflamattory Rconstitution Immune Syndrome

4.5 Objective 3: Determining the availability of policy guidelines/protocols for implementation of the integrated set of activities for prevention and treatment of TB and HIV co-infection at health facilities

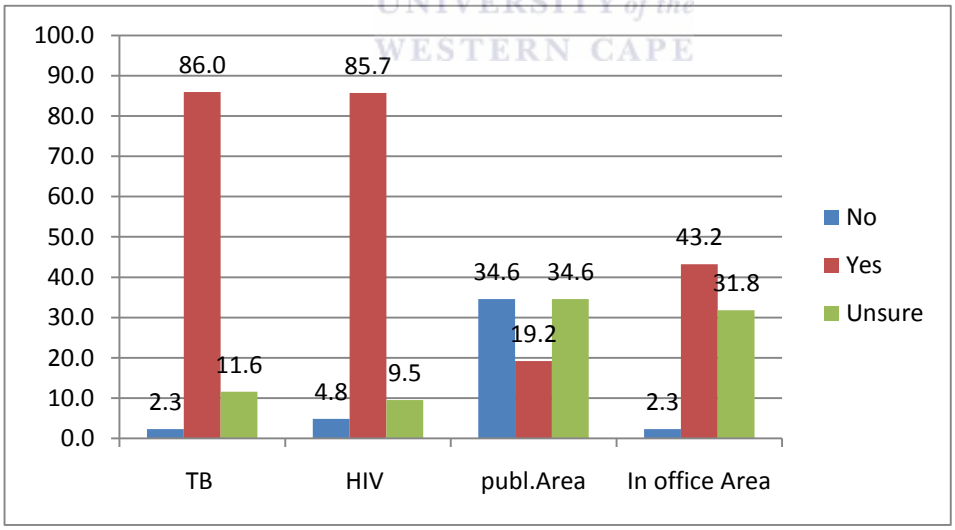
This section presents the availability and use of policy guidelines at health facilities to ensure implementation of the integrated TB, HIV and AIDS policy in a rural sub-district. In an attempt to determine how many people had access to and use the policies, the researcher used training as a measure which will give a true reflection of whether respondents had engaged with the policy at a point in their work. This decision was justified by the fact that having a document file in the facility does not equal having access and using it to serve the desired purpose whereas if an individual has been trained,

they will be aware about the need for its availability, accessibility and use in the facility. This measure can therefore allow for a fair measure of implementation practices as people would have been trained and cannot argue that they were not aware of the need for the availability of the policies.

4.5.1 Availability of policy guidelines

Regarding the availability of policy guidelines in the health facilities, most nurses are aware about the existence of the policies, but some have not been able to access them at the facility level, which may affect policy implementation. As indicated in Figure 4.10 below, the majority of respondents reported that both TB and HIV policy guidelines are available in their facilities (86% and 85.7% respectively), while 43.2% reported having a policy on TB infection control in their office. Only 19.5% reported having the policy displayed in public areas

Figure 4.10: Availability of policy guidelines at the facilities



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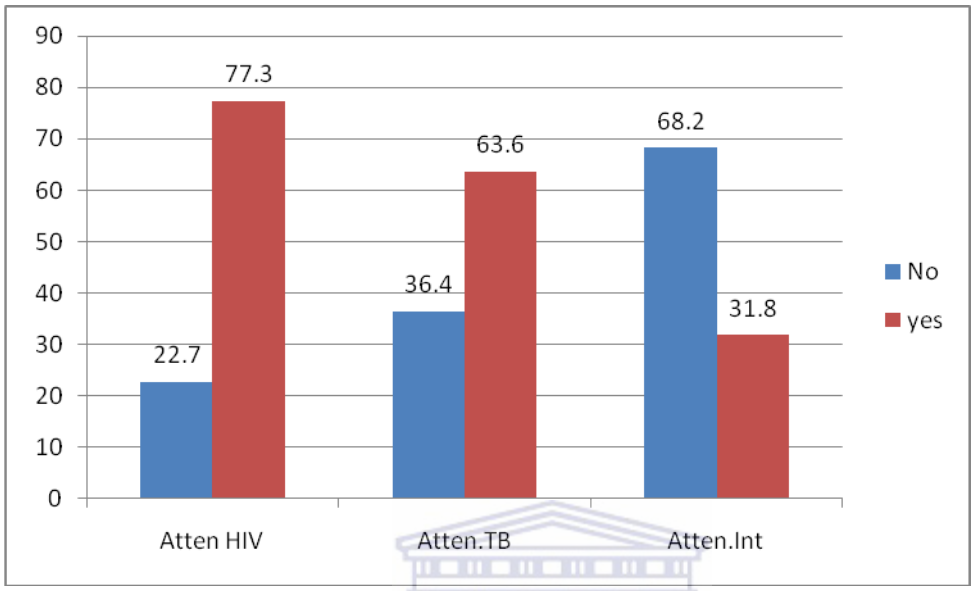
4.5.2 Training on policy guidelines

As shown in the Figure 4.11 below, the majority of respondents were trained on HIV (77.3%) and TB (63.6%) separately. However, there were a few (31.8%) who were

trained on the integrated TB and HIV policy. As a result most felt that they were not properly trained on the TB and HIV integrated policy.

Figure 4.11: Training on policy guidelines (%).

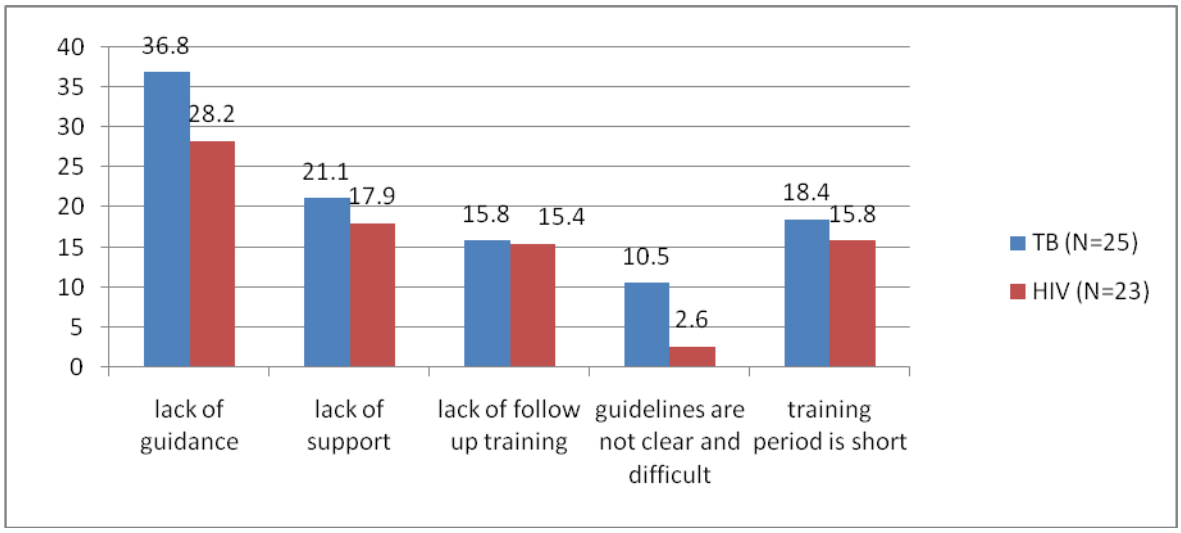


***Atten= attended HIV or TB or integrated training; *Int= integrated**

4.5.3 Reasons for lack of training on policy guidelines

Figure 4.12 below shows that lack of guidance on what to train in was reported by most of the respondents (those from TB clinics – 36.8% and HIV – 28.2%), followed by lack of support (TB – 21.1% and HIV – 17.9%) as the main reasons for not attending training on TB and HIV policy. Furthermore, lack of follow-up training and the shortness of the training period were also reported to prevent adequate knowledge on the policy guidelines.

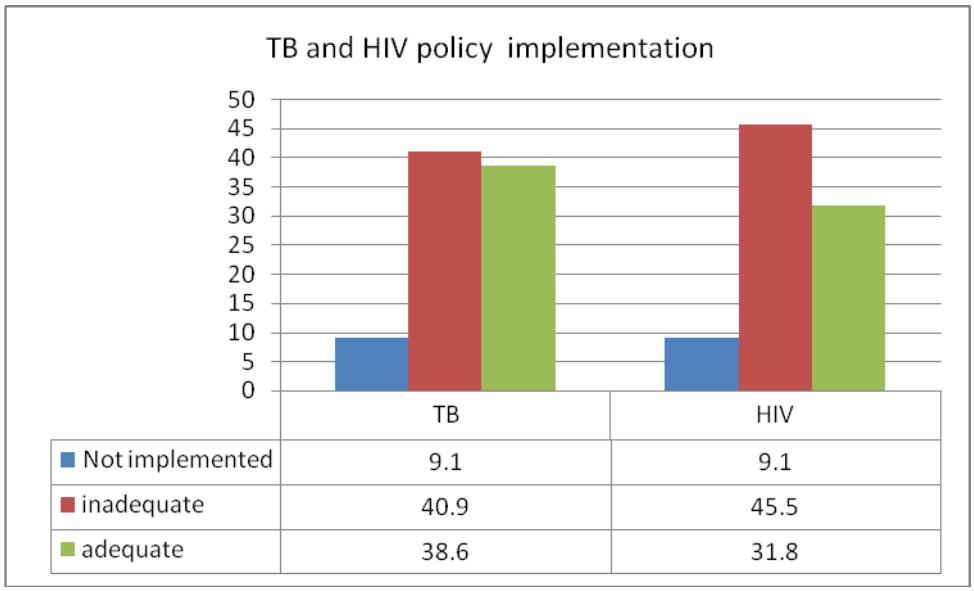
Figure 4.12: Reasons for lack of training on policy guidelines



4.5.4 TB and HIV policy implementation

When policy implementation was analysed, the assumption is that trained nurses are able to implement the TB and HIV policies as set out in the policy guidelines, and those who are not trained are assumed to be dependent on verbal instructions from their trained colleagues. The findings of this study identified that most of the health care providers followed the vertical programme guidelines rather than integrated TB and HIV policy guidelines as stated in the strategic plan on TB/ HIV/AIDS/STIs 2011-2016 (NDoH, 2012a). This has resulted in lost opportunities for proper management in some cases. In measuring the overall implementation of the policy, 45.5% stated that implementation of HIV policy was not adequate, while 31.8% labelled it adequate; however, 9.1% of respondents reported that HIV policy was not implemented. In contrast, 40.9% of respondents reported that implementation of TB policy was inadequate, while 38.6% reported it as adequate; 9.1% reported that TB policy was not implemented. Figure 4.13 shows the results on TB and HIV policy implementation.

Figure 4.13: Implementation of TB and HIV policy



4.6 Summary

In summary, this chapter reported the results in line with the objectives of the study. The researcher deemed it is relevant to look at general aspects of practices in the TB services, because failure to adhere to them is equivalent to poor implementation of what is expected from the Strategic Plan on HIV, STIs and TB 2011-2016 (NDoH, 2012a).

The study demonstrated that although some nurses undertake activities outlined in the policy guideline, a significant amount were either not sure and did not know what they were supposed to do. This indicated the clear divides between these two programmes whereby most respondents tended to focus and practice well on one of the services (either TB or HIV/AIDS) with a few able to work in an integrated manner.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

In this chapter the findings of the study are discussed in response to the objectives of the study and in relation to supporting literature. The chapter also presents the limitations of the study. The discussion first presents the demographic information and general practices pertaining to TB infection control measures, and then responses to objectives: the implementation of HIV care services for TB patients as a component of the integrated TB and HIV programme services at HIV and TB clinics (objectives 1 and 2); and determining the availability of policy guidelines at health facilities (objective 3), and training on implementation of an integrated TB and HIV policy as an indicator for facilitation of proper policy implementation.

5.2 Demographic information

Of the total of 60 respondents who agreed to participate in the study, more than 73% completed and returned the questionnaires. This response rate was within the acceptable limits for a quantitative study to analyse and use the data. In this study more than 86% of the respondents were female, which is common in studies of nursing since this is a female- dominated profession, however, male entering in the profession in the raise (Zamanzadeh, Valizadeh, Negarandeh, Monadi & Azadi,2012). This is also consistent with basic healthcare framework, with female nurses forming the largest group of employees (White, 2011). Historically nursing was a male-dominated profession between

250 BC and 1901; a radical shift took place during the early 1900s by excluding male nurses from nursing schools and closing down all-male nursing schools.

As indicated in the analysis section of this study, the majority of the respondents held diplomas in nursing. This is also common in many developing countries, where most of the PHC services are rendered by nurses with a diploma in nursing. In this study 43.2% of the respondents had a diploma; only 22 % had a degree in nursing. Although the focus of this study was not on determining the practices of the different categories of nurses (registered nurses, enrolled nurses, auxiliary nurses and enrolled nursing assistants), the level of educational achievement could play a significant role in the interpretation and implementation of policy guidelines related to their specific professional tasks (White, 2011).

5.3 Analysis of the implementation of HIV care services for TB patients as a component of the integrated TB and HIV programme services at HIV clinics

Objective one was measured by analysing the practices that are expected to be adhered to in health facilities pertaining to the implementation of the National Strategic Plan on HIV, STIs and TB 2012-2016 (SANAC, 2011) that serve TB and HIV/AIDS patients in particular, the practices in the HIV/AIDS clinic or consulting room. The policy guidelines on integrated management of TB and HIV cover a number of aspects, such as the management of patients with co-infection as well as screening of HIV patients for TB` and HIV testing for TB patients.

The first thing noticeable in the current study was that most facilities did not offer integrated services for TB and HIV patients, which implies that patients still had to move from the TB clinic to the HIV clinic or different consulting rooms to be attended to by

different nurses. This is contrary to the one- stop approach that is recommended in the National Strategic Plan on HIV, STIs and TB 2012-2016 (SANCA, 2011). This plan articulates the attainment of different objectives for policy guidelines implementation, such as zero new infections of TB, HIV and STIs; zero deaths as a result of these epidemics; and zero level of discrimination of people living with HIV and TB (SANAC, 2011).

Patients living with TB and HIV are at increased risk of developing other opportunistic infections, such as pneumonia and viral infections; therefore co-trimoxazole is usually given as prophylaxis. In this case patients have to take many types of medications daily, and they therefore need to be given enough and the correct type of information about treatment, as articulated in the National Strategic Plan on HIV, STIs and TB 2012-2016 (SANAC, 2011). This study revealed that over half of the respondents provided correct information to patients, including the counselling session related to co-trimoxazole as being used to prevent pneumonia and other infections. Nevertheless the study also revealed that 15% of respondents provide incorrect information to patients, such as co-trimoxazole preventing rashes and other side-effects. The fact that about one-third of the respondents were unsure about the content of counselling sessions that were supposed to be given to patients is also a cause for concern as this implies that patients are not getting adequate and proper information which could have negative consequences. This result is in support of a previous study by White (2011) that patients are sometimes given incorrect information and that could increase the default and relapse rate. The argument here is that patients need to be given enough and correct information as indicated in the policy guidelines; and this highlights the need to increase the respondents' knowledge for better practice. Small mistakes in clinical practice could create enormous damage both to the patient, family and the health system. Providing the wrong information about

medication side-effects to a patient would increase the default rate, because a patient who does not understand how severe the side-effects of medication are would think the damage of the medication as worse than the illness itself, and decide to default. The other concern identified by this study is that patients might develop a lack of trust of the treatment as well as of the healthcare providers if inadequate and incorrect information is given to them about the treatment he/she is taking.

In terms of eligibility for prophylactic TB therapy, unexpectedly the findings of this study highlighted a lower level of understanding and practice with regard to IPT. Only 44% of respondents indicated that IPT should not be given to those with liver disease, and less than 30% carry out the practice that TB prophylaxis should not be given if a patient abuses alcohol leaving the majority practicing incorrectly with almost half of the respondents unsure about when TB prophylaxis could not be given. The national consolidated guidelines recommend that patients who are not eligible for IPT are those who are confirmed or unconfirmed with active TB, liver diseases, peripheral neuropathy, and excessive alcohol abuse, with completed treatment for MDR-TB or who are ill and in an unstable condition (NDoH, 2014a). The WHO found a consistent gap in integrating IPT for TB prevention and TB screening and diagnosis in pre-ART care (Legido-Quigley et al, 2013).

The possible interpretation of this is that healthcare providers had poor understanding on how to carry out practice in such cases. This low level of understanding and performance is a very serious concern which might have practical implications that could cause harm to a patient with liver disease, peripheral neuropathy and alcohol problems. These are the few identified problems, among others, that could be of serious concern, as the majority

of the nurses involved in the management of TB and HIV/AIDS lack clear direction on very critical issues such as this.

Developing the best policy guidelines alone is not enough for its effective implementation; the implementers of the policy guidelines need to be trained about the policy itself, making sure that they are well versed in the policy guidelines that they are implementing.

In assessing the integrated practices of TB treatment for HIV-positive pregnant women, it is worth noting that most of the respondents agreed that streptomycin is not given to pregnant women (it is teratogenic); however, it is still a concern that 43.2% were unsure whether it should be given or not. This could also be due to limited and/or inadequate training given about TB and HIV integrated services, although further investigation is needed to provide a grounded justification as to why almost half of the healthcare providers were not sure of practices that demand more attention because of their sensitivity.

The results of this section indicate that even though nurses working in HIV/ AIDS clinics or consultation rooms dedicated to HIV/AIDS try to integrate activities that include the care for TB patients, more work still need to be done to ensure that those who are not sure of what they are supposed to do and those who do not know are skilled enough to implement policy guidelines properly. It is absolutely essential that the identified practice gaps are addressed. There is a need to develop intervention strategies for healthcare providers, specifically nurses as one of the target groups, and to engage in activities to improve capacity to manage TB and HIV co-infection despite infrastructural or human capital challenges.

5.4 Analysis of the implementation of TB care services for HIV patients as a component of integrated TB and HIV programme services at TB clinics

The study identified that there were varied levels of practices in the implementation of the policy guidelines as described in the results. While there has been significant improvement in the expansion of HIV testing and TB screening and decentralisation of ART services, there are gaps in the implementation of integrated TB and HIV services in South Africa (Legido-Quigley et al, 2013). Similar results were also observed in this study, with several challenges in the implementation of integrated services for TB patients who also need HIV and AIDS care in the study setting. In this objective, and array of activities in the TB clinics or consulting rooms were analysed starting the process with infection control measures that are adhered to in these settings.

The infection control measures were analysed based on the National TB Management Guidelines of 2014 (NDoH, 2014b) that provide three categories of infection control measures: environmental, administrative and personal protection. The findings in the environmental infection control category indicated that the majority of the respondents frequently practice sputum collection in outside areas to prevent the spread of infection; and more than 64% usually ventilate the counselling room by keeping the window open. These are the strongest aspects of TB infection control practices related to the environmental category especially when HIV infected patients are involved because of their vulnerability to infection. This implies that most nurses understood the significance of reducing nosocomial infection and improvised in cases where there was not adequate ventilated space to accommodate patients.

On the aspect of administrative infection control measures, more than half of the respondents provided masks to all patients with cough; while more than 61% of the respondents attend first to those patients with cough and sputum-positive patients as a means of preventing the transmission of infection. Two-thirds of the respondents conduct a fast-tracking system to reduce the contact time. This might imply that most nurses are concerned or fearful of getting TB infection in the work place thus does everything to protect themselves and other patients. However, less than half of the respondents practice routine screening for all patients with cough which can mean that their fear of infection is limited to them and those in their immediate vicinity but not to the patient's contact and the community at large. The findings from a national infection control evaluation of Tuberculosis hospitals in South Africa that staff adherence to infection control recommendation practices were poor (Farley,Tudor, Mphahlele, Franz, Dorman & van der Walt,2012) support these findings.

Notably in this study, most of the respondents practiced other aspects of infection control relatively well which implies that nurses have begun to make strides in contributing to reduction of the spread of TB. This aspect of infection control is one of the strongest components that must be adhered to, as noted in the National TB Management Guidelines of 2014 (NDoH, 2014b). A similar study conducted on infection control behavioural issues for health workers has shown a significant shift occurred in health care workers' compliance with hand washing guidelines following interventional program and there also a change with regard to attitudes, beliefs and knowledge of the health workers(Edward,2010).

It was interesting to see that respondents had good practices in terms of personal protection measures, with more than 88% performing hand washing regularly after

handling sputum, and more than 83% practicing prevention of infection by collecting sputum away from other patients. Also just over half of the respondents know their own HIV status. A similar study conducted in South Africa has shown that 41% of the health workers were unaware of their personal HIV status (Kanjee, Cattrick, Moll, Amco & Friedland, 2011).

Surprisingly, only 40% of the respondents wear masks to protect themselves from infection. A possible explanation for this could be due to the inadequate supply of masks to the staff, mask wearing not being seen as an important means of infection control by budget administrators. However, the justification for this was not investigated. The findings of this study on infection control measures were consistent with those of a study conducted in Jamaica that showed that healthcare workers have good knowledge and practices related to TB infection control measures (White, 2011). Another study conducted on severe acute respiratory syndrome transmission among hospital health workers in Hong Kong identified inadequate supply of personal protective equipment; inconsistent training and use of personal protective equipment were significant independent risk factors for SARS transmission (White, 2011).

In analysing the practices pertaining to TB infection control measures, this study identified that the majority of respondents frequently practice sputum storage incorrectly. These incorrect sputum storage practices might lead to incorrect results and management of patients; implying that a patient who is supposed to be diagnosed positive for TB infection might be misdiagnosed. Additionally, the national policy guidelines recommend storing sputum in the fridge when transport is not available; the vast majority of respondents were not implementing this. Such noncompliant practice may interfere with the final test results. In areas where there is a high prevalence of TB infection, such as in

South Africa, this incorrect practice could increase the TB infection transmission rate. These results are consistent with a study on tuberculosis infection control in rural South Africa which identified that tuberculosis patients screening practices among the health workers was inadequate for infection control (Kanjee, Cattrick,Moll,Amico & Friedland,2011).

Providing more emphasis on training of staff could assist in increasing understanding about policy guidelines, which may serve as a motivating factor to healthcare providers to improve on the proper sputum collection and storage practices.

With respect to increased effectiveness of DOTS, studies compared the effectiveness of DOTS and self-administration of TB treatment identified that there was no significance between the two strategies for cure(Azhar,2012; Rehman,2012). Moreover, there were similar results for cure with completion of the therapy. It is interesting to note that DOTS at home had a little more benefit than DOTS at clinics in terms of cure (Rehman, 2012). The study revealed that the practices to increase effectiveness of DOTS were minimal.

There was a lower level of practice with regard to classification of TB defaulters and relapse cases, more than sixty one percent (61.4%) of the respondents were able to classify defaulters and less than one-third were able to classify relapse cases as per TB policy guidelines. However, the majority of respondents were unsure on how to classify relapse cases. The implication of this could be that so many defaulters may develop MDR-TB because of poor identification and management of default and relapse cases. This might have been one of the factors that contributed to the high prevalence of MDR-TB in South Africa. White (2011) identified that a confirmed TB patient who had defaulted on treatment went on to develop MDR-TB. A similar study in KwaZulu-Natal, South Africa, indicated that the highest number of MDR-TB cases in the province was

associated with a high default rate and HIV infection (Cohen, Murray, Wallengren, Alvarez, Samuel & Wilson, 2010).

In terms of implementation of the integrated policy guidelines, the correct treatment protocol to be applied if a person developed TB while on ART with a CD4 count of <100/µl was analysed. The study revealed that just over 60% of respondents practice initiation of ART when the patient is stable on TB medication, and less than 10% choose to delay ART initiation. However, almost one-third of the respondents were unsure about when to initiate ART when the CD4 count is <100/µl. These are contradictory results, which imply that healthcare providers do not have common understanding and practices when it comes to the management of TB and HIV co-infections.

The possible explanation would be poor understanding of the exact management of ART for a person who develops TB while on ART, and also limited knowledge due to inadequate training. These findings are consistent with those of White (2011) and mean that healthcare workers have suboptimal performance on TB-related practices. A previous study by Chehab et al., 2013) also identified that IRIS and drug interaction are barriers to ART initiation in TB and HIV co-infected person. This finding indicated that in order to have better outcomes in integrated TB and HIV management, healthcare providers must be competent in terms of drug-drug interactions and toxicities between anti-TB and antiretroviral drugs (Chehab et al., 2013).

The TB diagnosis confirmation process is another important area of practice to reduce the spread of infection. Three-quarters of the nurses did follow the process of TB diagnostic confirmation as per the National TB Management Guidelines (NDoH, 2014b), that two sputum specimens should be taken an hour apart for TB diagnostic confirmation.

However, this would not influence the outcomes if the sputum storage systems are still incorrectly practiced.

Different practices were identified in this study with respect to reasons for transferring patients to a TB hospital. Reasons given varied from them being too ill to being uncooperative or that re-treatment and streptomycin could not be managed at their level. These differences in practices might be due to the different levels of health facilities that they were working in. For instance, those working at clinics might not have the same reason for transferring patients to a TB hospital as those working at a health centre and day hospital. There was no direct contrast with previous studies.

According to the PHC care re-engineering policy, TB was integrated into the mandate of SANAC alongside HIV in 2009 (NDoH, 2010), and the joint TB, HIV, and STIs strategic plan was developed in 2012. The national report of 2014 indicated that there was successful integration of HIV, TB and PMTCT services, particularly at the PHC level (NDoH, 2014a). Additionally there was a success story regarding policy guidelines implementation; for instance, there has been a rapid scale-up of ART services, resulting in a four-fold increase in the number of people receiving ART between 2009 and 2012. The counselling and testing campaign resulted in about 15-20 million tests for HIV, and 3 million people were screened for TB. Case detection has increased and the number of sites initiating MDR-TB treatment has increased from 11 to 45 (NDoH, 2014c). However, the report also indicated that there were challenges in some areas, such as low HIV and TB treatment coverage among children and adolescents, male circumcision falling short of the national target, and key population not being adequately reached with TB and HIV services (NDoH, 2014a).

On the contrary to the national report about the success of TB and HIV service integration at PHC level, this study identified policy guidelines implementation gaps, particularly on the integration of TB and HIV services. At PHC level TB and HIV programmes were still rendering services disjointedly. The integrated TB and HIV treatment guidelines and standard operating procedures were not clear to the healthcare providers. This resulted in difficulty in tracing defaulters and developing intervention strategies to address the problems. These findings are supported by a WHO report which indicated that there was no guidance for community healthcare providers on handling defaulters and no systems for reporting or managing side-effects of the drugs (Legido-Quigley et al., 2013). The report further indicated that although MDR-TB treatment has increased, treatment outcomes are poor and are unlikely to reach a 60% treatment success target by 2016 (Legido-Quigley et al., 2013).

5.5 Determining availability of policy guidelines/protocols for implementation of the integrated set of activities for prevention and treatment of TB and HIV co-infection at health facilities

Nurses are the major healthcare providers in the country thus they need to be conversant with the policies that have been developed to fight the major health problems such as HIV and TB, as they are crucial for their implementation. Some policies and guidelines – such as TB and HIV policies – change frequently in order to address the health problems better (particularly TB and HIV con-infection and drug combination interaction). However, these policy guidelines have to be available, accessible and be used. Nurses who are the forefront of these policies have to attend in-service training to keep up with the policy guidelines changes and implementation practices.

This study identified that most of the in-service training was given on separate aspects of TB and HIV policies, as supposed to the integrated training for TB and HIV policy

guidelines implementation. This was because of training opportunities being aligned to the area of work or specialisation. For instance, a nurse who is working in the TB clinic will go only for TB training, and the one working in the HIV clinic will go only for HIV training. Less than a quarter of respondents indicated that they had the opportunity to get training on both TB and HIV policy guidelines implementation (11.4% and 18.8% respectively). However, it is argue that one of the strategies for the success of TB and HIV integrated services is providing comprehensive training course for the health workers, particularly nurses who are the primary health care providers.

There were various reasons indicated for not attending integrated TB and HIV management in-service training. For instance, the lack of guidance on what has to be trained on, lack of management support on choice of training as well as short training time prevented most of them from having adequate knowledge of the integrated TB and HIV policy guidelines implementation. The lack of adequate staff trained in the management of both TB and HIV co-infection was reflected in poor implementation of the integrated TB and HIV policy outcomes. This study is in contrast with the results of a study conducted in South Africa , which identified among others structure and organizational culture, management, planning and human resources as the main barriers of TB and HIV policy implementation (Uvmana, Jackson, Hausler & Zarowsky,2010). Literature review has shown that in order to address the problems of TB and HIV co-infection, integration of services or collaboration of activities are essential (Friedland et al., 2012; Gunnberg et al, 2008; Loveday & Zweigenthal, 2011). Thus, the lack of training on integrated TB and HIV services made it difficult for TB and HIV co-infected patients' continuity of care and better outcomes. It is also true that there was a challenge in coping with an increasing number of patients and defaulters. Moreover, studies have identified insufficient staff trained to manage both TB and HIV co-infection and poor

support systems as barriers for implementation of integrated TB and HIV services (Legido-Quigley, et al., 2013; Martino, Van Rie, Mulangu, Mbulula & Jarrett, 2008).

The national policy guidelines that has been implemented has the main goal of fighting HIV and TB, aiming to achieve set targets by 2016 such as increasing the TB cure rate to 85%, provision of ART to at least 80% of those who are eligible, and reducing HIV infection by 50%. However, this study noted that policy guidelines implementation was not adequate, as reported by the respondents, and this has major consequences on the health outcomes of the population being served.

Therefore, the findings of this study have highlighted some of the similar challenges that have been previously reported in the literature with regard to integration of HIV and other services at policy guidelines implementation level, which includes lack of policy guidance on integrated care observed in the case of TB and HIV care. This finding is also supported by those of other similar studies, such as weak referral systems, the two vertical programmes still running parallel without any collaborative activities, and at service level reports of staff shortages, inadequate training and skills, and an inadequate monitoring system (Smit, Church, Milford, Harrison & Beksinska, 2012). Smit et al. (2012) suggest possible intervention strategies that can enhance integration, including training at both pre-service and in-service level.

The findings of this study are also consistent with those of McGrath, Richter and Newell (2013) and Smit et al. (2012) that indicate the need to consider an intervention strategy to enhance policy guidelines implementation. Despite the fact that the government adopted the integrative model of care, and started its implementation in 2011 and encourages the development of HAST coordinators for the integration of TB and HIV services, the

reality is that the two traditional programmes are still running parallel, without coordination.

.The study also highlighted that TB and HIV policy guidelines were available in the health facilities, but they were not accessible publicly for implementation. Few respondents agreed having TB policy document on TB infection control office, and less than 20 percent of the respondent agreed the TB and HIV policy documents were publicly available. Although it was found that the policy documents are available at health facilities unlike the report of (McGrath et al., 2013), the policy documents are thick and difficult to understand easily for implementation. The policy guidelines were supposed to be accessible for all the nurses that were expected to implement, and the nurses should also understand policy guidelines clearly for successful implementation. This challenge has been compounded by the lack of nurses' involvement in policy development, which means nurses lack ownership of it. This has been proven in a number of countries, such as Kenya, Canada, South Africa and Uganda (Juma, Edwards & Spitzer, 2014; McGrath et al., 2013). As noted by Arabi, Rafii, Cheraghi and Ghiyasvandian (2014) and McGrath et al. (2013), nurses need to be active respondents and able to influence the development of policies, as opposed to being just implementers. This will facilitate their ability to control practice. The nurses' involvement in policy development has been noted to be beneficial, as their experiences and insights would facilitate required improvements in the quality of health services, and provide needed information for strengthening the health system, as well as the opportunity to provide inputs into the policies that can enhance their working environment (Juma, Edwards & Spitzer, 2014).

5.6 Limitations of the study

The study suffered from a number of limitations. Owing to time constraints and limited funding it was not possible to involve more research sites in the study. The study included almost all nurses from all healthcare facilities in a rural sub-district of TWK; however, the numbers of nurses were small. Thus the findings of the study are limited from generalisability to the larger study population. The small sample size reduced the power of the survey and may conceal statistically significant differences among the study population. A larger sample size could have provided a clearer the relationship between factors such as the adequacy and relevance of training and management of TB and HIV integrated services. The study was unable to conduct document review on the number of patients screened for positive TB symptoms, the number of patients tested for HIV and the number eligible for IPT because of restrictions to the site and time. This may be considered as a limitation as the results would have validated the current finding and given a broader understanding of actual practices.

5.7 Summary

This section discussed the supporting literature from previous studies which related to the findings of this study. All the objectives' results were outlined and interpretations and possible explanations by the researcher pertaining to the findings were given. In general the chapter captured the essence of what the findings might imply within the study context and in relation to the field as denoted by literature used.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter provides the conclusion of the study and recommendations for health services, nursing training institution and further research

6.2 Conclusion

The aim of this study was to analyse the implementation of the integrated TB and HIV policy guidelines in a rural sub-district of TWK healthcare facilities in the Western Cape. In this regard an extensive literature review was conducted to identify relevant evidence about integrated TB and HIV policy guidelines implementation. The importance of TB and HIV programme collaboration is internationally recognised, with guidelines recommending that all patients with active TB who are HIV positive start on ART as soon as possible. Effective integration of TB and HIV services is crucial to ensure that patients gain access to the care they need and to ensure best health outcomes. Particularly in settings where there is major overlap between the TB and HIV infections, it is likely that integrated care would serve the patient best (Legido-Quigley et al, 2013). Empirical data was collected and analysed on the implementation of the integrated TB and HIV policy guidelines in a rural sub-district of health facilities under the research. Based on the findings, this study concludes that not all activities that were expected to be undertaken in the HIV clinics that include good care to patients co-infected with TB are done, thus showing poor implementation of the integrated TB and HIV/AIDS policy guidelines. In the same analogue not all activities that were expected to be performed in

the TB clinics which include provision of care to patients co-infected with HIV as indicated in the integrated TB and HIV policy guidelines that is a one stop TB and HIV services should be provided by one health care provider for TB and HIV patients at TB and HIV clinics was not practiced where this study was conducted. These shows that the integrated TB and HIV policy guidelines was not translated into practice. This also due to the lack of the collaborative effort between the two traditional vertical programmes (TB and HIV Programme) to integrate the TB and HIV services. Without adequately addressing the attitudes of the two traditional vertical programmes, there would be limited success in integrated TB and HIV management in the long run. Thus the TB and HIV programmes will have to work in an integrated manner to benefit as much as possible from the TB and HIV integrated policy guidelines.

This study also concludes that policy guidelines were available in the majority of the health facilities, but accessibility to the policy guidelines were a problem. Therefore, the extend availability of policy in the facility does not translate to proper implementation. In cases were polices are not displayed in public areas but are in offices, the practice need to be discouraged and an open place be identified were these could be easily accessed. The shortfalls in the implementation of policies at the health facilities have potential to affect patients' health outcomes negatively if correct and appropriate health care is not provided. The integrating TB and HIV care has been shown to be an effective strategy to control dual infection through early detection and treatment of TB for people with HIV, and of HIV among TB patients are crucial to control both epidemics. The fight against the dual epidemics of TB and HIV/AIDS is an important aspect in improving the health outcomes of the population, and the role of nurses is crucial for its success as the main policy guidelines implementers at health facility level. Furthermore, it requires a strong support system from government for the successful implementation of the integrated TB

and HIV policy guidelines to support the large number of co-infected patients in South Africa.

6.3 Recommendations

Based on the findings of this study, the following recommendations are made:

6.3.1 Recommendations for health services

This study has demonstrated that there were poor practices in the integrated management of TB and HIV co-infection among nurses working with TB and HIV patients. The traditional vertical TB and HIV programmes are still operating disjointedly at the PHC services. These have affected the quality of healthcare provision for those patients co-infected with TB and HIV. Those nurses working at TB clinics only have training on TB infection management; similarly, those who were working at HIV clinics have training only on HIV/AIDS infection and management, but not about the management of TB infection. This had impacted negatively on the integration of TB and HIV services.

In order to improve the implementation of integrated TB and HIV services and improve the outcomes of TB and HIV co-infected patients, the health system environment should be adequately prepared to handle the challenges of TB and HIV management. Therefore, it is recommended that:

- A continuous staff capacity development programme in TB and HIV integrated services, which includes cross TB and HIV training for healthcare providers and a career development programme in TB and HIV/AIDS management be developed and implemented as it has the potential to address the current problems.

- Ensure the availability of policy guidelines publicly to be accessed by all health workers to improve it is implementation

- To involve all types of healthcare providers and affected communities in all aspects of planning, policy development, implementation and monitoring of the integrated TB and HIV care. It is essential that nurses need to own the policy guidelines that they are implementing.

- The study identified resources and appropriate managerial support systems as major problems in integrating TB and HIV services. Therefore the government should ensure adequate resources and support systems for effective implementation of the integrated TB and HIV policy guidelines.

6.3.2 Recommendation for nursing education

This study has shown challenges in the implementation of the integrated TB and HIV policy guidelines in the rural sub-district under research. These were mainly due to lack of training about policy development and implementation. Anecdotal evidence has shown that nursing training institutions do not provide courses on policy development and implementation. Therefore,

- It is highly recommended that policy development and implementation be incorporated into the nursing curriculum at higher nursing training institutions.

- The training aspects should be focused on identified priority diseases including TB and HIV policy guidelines in South Africa.

6.3.3 Recommendation for further research

This study recommends that further research be carried out on a greater scale that will influence policy guidelines implementation and policy formulation. The following research areas are recommended for further research development by researchers and other interested groups:

- Research on the link between the quality of integrated TB and HIV policy guidelines implementation and the quality of patients' outcomes.

- A deeper and wider scope of document review on the integrated TB and HIV services, particularly on the number of HIV patients screened for TB and TB patients tested for HIV.

- Healthcare providers may not be motivated to carry out integrated TB and HIV activities as they may perceive this an extra load of work, and may be reluctant to implement HIV testing early in TB treatment. It is therefore essential to investigate.

- Research on staff attitudes on the integrated TB and HIV model of care. Further research to provide data on the effectiveness of the integrated TB and HIV services in terms of cost and patient outcomes and from the health service perspective.

6.3.4 Summary

This chapter discussed the study conclusions which gave a clear understanding of what was found in the study site. Recommendation for practice, nursing education and practice were also given.

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Annexure A: Information Sheet

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INFORMATION SHEET

Project Title: Analysis of implementation of the integrated tuberculosis and HIV/AIDS policy in a rural sub-district of the Western Cape

What is this study about?

This is a research project being conducted by Million Bimerew at the University of the Western Cape at the University of the Western Cape. We are inviting you to participate in this research project because you have experiences working with TB and HIV/AIDS patients. The purpose of this research project is to analyse the implementation of the integrated TB and HIV policy in the healthcare facilities of a rural sub district of TWK in the Western Cape. The knowledge of the outcomes of this study will help as a baseline data for the bigger project to design intervention strategies for integrated TB and HIV/AIDS services

What will I be asked to do if I agree to participate?

You will be asked to answers questions related the integrated TB and HIV/AIDS policy implementation, such as the availability of Integrated TB and HIV policy guidelines for reference at your facility, and you will also be asked activities that are currently conducted related to the integration of TB and HIV services. You will answer the questions by ticking the right answer or completing the blank space. Completing the questions will take 15-20 minutes of your time. The questionnaire will be delivered at your office and will be collected back in week time once you have completed the questions. Your name is anonymous, we can only use code and no identifies will be used, and all information obtained from you is confidential

Would my participation in this study be kept confidential?

The researchers undertake to protect your identity and the nature of your contribution. To ensure your anonymity, We will do our best to keep your personal information confidential. To help protect your confidentiality, the information will be protected with password in the computer, and CDs and recorder will be kept locked in filing cabinet.

Moreover, (1) your name will not be included on the surveys and other collected data; (2) a code will be placed on the survey and other collected data; (3)

through the use of an identification key, the researcher will be able to link your survey to your identity; and (4) only the researcher will have access to the identification key. If we write a report or article about this research project, your identity will be protected.

What are the risks of this research

All human interactions and talking about self or others carry some amount of risks. We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

What are the benefits of this research?

This research is not designed to help you personally, but the results may help the investigator learn more about the implementation of integrated TB and HIV services. We hope that, in the future, other people might benefit from this study through improved understanding of the implementation of integrated TB and HIV services.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?

This research is being conducted by ***Million Bimerew*** at the University of the Western Cape. If you have any questions about the research study itself, please contact Million Bimerew at: 021 959 9346, email: mbimerew@uwc.ac.za.
Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Head of Department: prof. K. Jooste
School of Nursing, Community and Health Sciences,
University of the Western Cape
Tele. 021 959 2271/2794
Email: kjooste@uwc.ac.za

Dean of the Faculty of Community and Health Sciences:
Prof José Frantz
University of the Western Cape

Private Bag X17
Bellville 7535
chs-deansoffice@uwc.ac.za

This research has been approved by the University of the Western Cape's

Senate Research Committee and Ethics Committee

Annexure B: CONSENT FORM

Title of Research Project: Analysis of implementation of the integrated tuberculosis and HIV/AIDS policy in a rural sub district of the Western Cape

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's name……..

Participant's signature…….

Date……

Annexure C: Questionnaire

Questionnaire number: _____ Date of data collection_____

All questionnaires are completed anonymously. We would appreciate it if you would attempt to answer all the questions.

Please place a cross mark (x) in the box that best answers the question. Kindly make only one selection unless otherwise instructed.

I. Demographic questions

1. Sex/ gender: a) male☐; b) female ☐

2. What is your age category:

   a) ☐Under 25years; b)☐ 25-34 years; c)☐ 35-44years; d)☐ 45-54 years, e)☐ Above 55 years

3. Highest level of education:

   a) ☐ Matric; b) ☐Diploma ; c) ☐ Bachelor of Nursing degree

   d) ☐ Masters of Nursing degree ;e) ☐ Other : Please specify_____

4. What is your job title:

   a) ☐ Enrolled Nursing Assistant; b) ☐ Enrolled Nurse

   c) ☐ Registered nurse; d) ☐Single qualified Midwifery nurses

5. How long have you been working in your current position? (Please indicate in months or years) _____

6. What kind of facility do you work in?(tick in one box)

   a)☐ Clinic; b) ☐ Community health centre; c) ☐ Hospital.

II. Policy documents questions

7. Is there a copy of any TB policy document or guidelines accessible/visible in your facility?

a) ☐Yes; b) ☐No

8. Is there a copy of HIV policy document or guidelines accessible/visible at your facility?

a). ☐Yes; b) ☐ No

9. I s there a copy of the Integrated TB and HIV policy guidelines available/visible at your facility?

a) ☐Yes; b) ☐No

10. Were you consulted or involved in the process of TB and HIV policy development?

a) ☐Yes; b) ☐ No

III. Questions related to HIV/AIDS Care services for TB patients

11. Which of these HIV care do you provide to TB and HIV co-infected clients in your health facility? Please cross all that apply

a) ☐ An rapid plasma regain (RPR) test to screen for syphilis

b) ☐ PAP smears for all HIV positive women

c) ☐ Symptomatic screening for STI's at every visit and syndromic management of STI's

d) ☐ Cotriximoxazole prophylaxis against opportunistic infections

e) ☐ Diagnosis and management of other opportunistic infections

f) ☐ Nutritional assessment and the provision of nutritional supplements

g) ☐ Counselling support

h) ☐ Do not know

12. Which of the following information is covered at your facility when counselling for effectiveness and side effects of cotrimoxazole?

a) ☐ That cotrimoxazole can help prevent pneumonia and other infections

b) ☐ That it can prevent rashes and other side effects

c) ☐ That cotrimoxazole will be taken for only a short time

d) ☐ Do not know

13. In terms TB and HIV policy clients on TB medication and ART should be counselled about specific problems they are likely to encounter: Please cross all that apply

a) ☐ They will be taking a large number of tablets and may struggle with adherence

b) ☐ When antiretroviral treatment is commenced the client's TB symptoms may transiently worsen as part Immune Reconstitution Inflammatory Syndrome (IRIS)

c) ☐ TB and ARV drugs must never be taken together

d) ☐ Do not know

14. On a scale of 1 to 5, please rate how you implement HIV/AIDS policy guideline 1 = none, 2 = inadequately, 3 = somewhat adequately, 4 = adequately, 5 = very adequately

1	2	3	4	5
☐	☐	☐	☐	☐

IV. Questions related to TB care services for HIV/AIDS Patients

16. In terms of policy what is the correct treatment protocol to follow if TB develops while on ART? Please cross all that apply

a) ☐ Discontinue ART therapy throughout TB treatment

b) ☐ Continue ART therapy throughout the TB treatment

c) ☐ Patient can remain on the regimens they are taking

d) ☐ Patient should be put on second line regimen

e) ☐ Do not know

17. In terms of TB and HIV policy what is the current practice at your health facility if a client is diagnosed with TB before starting ART and CD4 count of <100/mm^3 ? please cross all that apply

a) ☐ Introduce ART management as soon as the patient is stabilized on TB treatment

b) ☐ Delay ART as much as possible to let the TB drugs work

c) ☐ Do not know

18. In managing co-infection of TB and HIV, the following patients should not be eligible for prophylactic TB therapy? Please cross all that apply

a) ☐ Client with active liver disease

b) ☐ Clients who abuse alcohol

c) ☐ Client requiring ART or on ART are not eligible

d) ☐ Do not know

19. Which of the following treatment does your facility offer to pregnant women? Please cross all that apply

a) ☐ Isoniazid

b) ☐ Streptomycin

c) ☐ Rifampicin

d) ☐ Do not know

20. In terms of the management of TB in children, TB policy guideline expects that the following steps should be followed after the exclusion of TB disease, INH prophylaxis should be given to? Please cross all that apply

a) ☐ All children under 5 years of age and HIV-infected children in contact with an infectious case of TB

b) ☐ All children under 5 years of age with a positive Mantoux

c) ☐ All HIV-infected children, under 2 years of age, with a positive Mantoux

d) ☐ Do not know

21. How are the symptomatic babies born to mothers with TB managed in your facility?

a) ☐ The baby should be referred to a hospital for evaluation to exclude TB with regimens 3

b) ☐ If the baby has TB, the baby should receive a full course of TB treatment

c) ☐ The baby should not initially receive BCG vaccination

d) ☐ Do not know

22. In terms of policy implementation which of the following correct treatment protocol applied if TB develops while on ART? Please cross all that apply

a)□ Discontinue ART therapy throughout TB treatmentb)□ Continue ART therapy throughout the TB treatment

c)□ Patient can remain on the regimens they are takingd)

□ Patient should be put on second line regimene)

□ Do not know

23. What should clinics do after discharging MDR-TB patients? Please cross all that apply

a) ☐ Prepare patients to manage themselves to avoid future monitoring

b) ☐ Ensure treatment compliance, continue psychosocial support

c) ☐ Trace treatment interrupters and address reasons for interruption

d) ☐ Arrange transport for weekly follow up at date patient treatment follow up card

e) ☐ Do not know

24. What are the practices in terms of referring patients from PHC clinics and general hospital to TB hospital: Please cross all that apply

a) ☐ When the patient is uncooperative

b) ☐ Re-treatment TB cases requiring streptomycin injections that cannot be managed at a clinic

c) ☐ When clinic or community supported care cannot be achieved

d) ☐ When clients diagnosed with TB are too ill or too weak to go home

e) ☐ Do not know

25. Which of the following recommended TB infection control measures practiced at your health facility? Please cross all that apply

a) ☐ Notify patients neighbours to avoid spread in the area

b) ☐ Notify co-workers to prevent the spread of TB in the workplace especially among miners

c) ☐ Ensure that TB-suspects spend as little time as possible in the facility by fast-tracking their process through reception to the appropriate services

d) ☐ Ensure sputum collection takes place away from other people

e) ☐ There is hand washing after handling of sputum samples

f) ☐ Appropriate placement of HIV positive staff in low TB risk areas of the facility

g) ☐ Mechanically ventilate areas where there may be high concentrations of infectious droplets

h) ☐ Do not know

26. On a scale 1 to 5, please rate how you implement TB policy guideline.

1 = none, 2 = inadequately, 3 = somewhat adequately, 4 = adequately, 5 = very adequately

1	2	3	4	5
☐	☐	☐	☐	☐

Annexure D: Ethical approval letter for the bigger project

UNIVERSITY of the
WESTERN CAPE

OFFICE OF THE DEAN
DEPARTMENT OF RESEARCH DEVELOPMENT

18 September 2013

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by Prof DR Phetlhu (School of Nursing)

Research Project:	Intervention strategies to improve the implementation of TB and HIV/AIDS policies in health care facilities in a rural sub-district of the Western Cape.
Registration no:	13/6/39

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

Private Bag X17, Bellville 7535, South Africa
T: +27 21 959 2988/2948 . F: +27 21 959 3170
E: pjosias@uwc.ac.za
www.uwc.ac.za

Annexure E: Ethical approval letter

UNIVERSITY of the WESTERN CAPE

OFFICE OF THE DEAN DEPARTMENT OF RESEARCH DEVELOPMENT

Private Bag X17, Bellville 7535, South Africa T: +27 21 959 2988/2948 . F: +27 21 959 3170 E: pjosias@uwc.ac.za
www.uwc.ac.za

15 June 2015

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by:

Mr M Bimerew (School of Nursing)

Research Project: Analyzing implementation of the integrated tuberculosis, HIV and AIDS policy in a rural sub-district, Western Cape

Registration no: 15/4/45

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

Annexure F: permission letter from Department of Health

Western Cape Government
Health

STRATEGY & HEALTH SUPPORT
Health.Research@westerncape.gov.za
tel: +27 21 483 6857: fax: +27 21 483 9895
5th Floor, Norton Rose House,, 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za)

REFERENCE: RP 150A/2013
ENQUIRIES: Ms Charlene Roderick

University of the Western Cape
School of Nursing
Private Bag X 17
Bellville
7535

For attention: **Prof. Rene Phetlhu**

Re: Intervention Strategies to improve the implementation of TB and HIV/AIDS policies in health care facilities in rural sub-districts of Western Cape

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.
Please contact the following people to assist you with any further enquiries in accessing the following sites:

Overberg District **Ms R Zondo** **Contact No. 028 212 1512**

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final report within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).
3. The reference number above should be quoted in all future correspondence.

We look forward to hearing from you.

Yours sincerely

DR J EVANS
ACTING DIRECTOR: HEALTH IMPACT ASSESSMENT
DATE:
CC **W KAMFER** **DIRECTOR: CAPE WINELANDS**