THE LEVEL OF KNOWLEDGE OF PRIVATE MEDICAL PRACTITIONERS REGARDING TUBERCULOSIS DIAGNOSIS AND MANAGEMENT IN TSHWANE, GAUTENG

by

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DECLARATION

I do hereby declare that, to the best of my knowledge, the work presented in this dissertation is original, unless otherwise acknowledged. It has not been submitted either in part or in full for publication or award of a degree in any other University. I henceforth present it for the award of degree of Master of Public Health to the National School of Public Health – MEDUNSA Campus, University of Limpopo.

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DEDICATION

This dissertation is dedicated to God, my creator, and to my husband and my three girls, for their continued support during my studies.

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Abstract

The management of tuberculosis has undergone a lot of changes from fixed dose tuberculosis regimen, directly observed therapy short-course strategy (DOTS) to the introduction of international standards to tuberculosis care (ISTC) in order to reduce the burden of tuberculosis. The study investigated and described the experiences of private general practitioners regarding the knowledge of diagnosis and management of tuberculosis in Tshwane, Gauteng Province.

The purpose of the research was addressed within a quantitative approach applying descriptive designs. A self-administered questionnaire was used to collect the data that fit the objectives of the research. In this study, the population applied to ninety-nine doctors of the Private General (Medical) Practitioners' profession in a specific urban area, namely the municipal area Tshwane, Gauteng Province, with the following inclusive criteria as study units: practicing as a General Practitioner in Tshwane, which includes the city centre (Pretoria Central), Atteridgeville, Pretoria suburbs, Atteridgeville, Mamelodi, Eersterus, Garankuwa, Mabopane, Odi and Soshanguve and sessions appointment at public hospitals.

The researcher drew a representative sample of the private medical practitioners with a random selection process whereby the first general practice in each area was selected randomly, and from there onwards the first three practice rooms, skipping the fourth practice room throughout the Guateng area where 90 private medical practitioners was reached.

A total of 90 questionnaires were distributed to General Practitioners in the identified areas of Tshwane, Gauteng Province. A response of 59/90 (66%) was obtained, which compares favourably with the experience of other researchers.

The study reveals that national TB guidelines are not properly followed by the respondents and that there is a need for public-private partnership in order to improve and enhance the diagnosis and management of tuberculosis in Tshwane, Gauteng Province.

Key terms:

Tuberculosis, diagnosis, knowledge, management, guidelines.

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LIST OF ABBREVIATIONS

AIDS: Acquired immune-deficiency syndrome

CME: Continuing Medical Education

DOTS: Directly Observed Treatment Support

GPs: General Practitioners

HIV: Human immune-deficiency Virus

MEDUNSA: Medical University of Southern Africa

NSP: National Strategic Plan

PPP: Public private partnership

TB: Tuberculosis

TBCTA: Tuberculosis Coalition for Technical Assistance

WHO: World Health Organization

CHAPTER 1: Background and introduction

1.1   Introduction

Progress has been made in the control of tuberculosis with the introduction of the different strategies like introducing fixed dose tuberculosis treatment regimen, the Directly Observed Therapy Short-course strategy (DOTS) and the International Standards to Tuberculosis Care (ISTC). "Most private consulting doctors were not aware of the correct diagnosis and treatment of tuberculosis and many used not the recommended treatment regimes, unfamiliar with a recording system of TB cases, and poor knowledge on various treatments". (Ayaya, Sitienei, Odero and Rotich 2003:1). The study seeks to investigate the knowledge and practices of private medical practitioners regarding experiences of tuberculosis diagnosis and management in Tshwane, Gauteng.

This chapter intends to provide an orientation of the background and introduction to the study and problem statement.

1.2   Background of the study

TB has been treated as a priority internationally. This is evident by a number of international, regional and national political and policy directives aimed at reducing the burden of TB. Some of these directives include the Millennium Development Goals (MDGs). Goal 6 of the MDGs refers to "Combating HIV and AIDS, Malaria and other diseases" and Target 8 aims to "halve and begin to reverse the incidence of Malaria and other major diseases." The indictors of target 8 are more specific in that it refers to recording the prevalence and death rate associated with TB and the proportion of TB cases detected and cured under the Directly Observed Therapy Short-course strategy (DOTS). These entire attempts would assist in the management of TB. (Tuberculosis Strategic Plan for South Africa, 2007-2011:5)

In March 2000, Ministers of the 22 high burden countries, called for the accelerated expansion of control measures and for increased political commitment and

financial resources to reach targets for global TB control by 2005, namely: Detect at least 70% of people with infectious TB and cure at least 85% of those detected. (Tuberculosis Strategic Plan for South Africa, 2007-2011:6)

In 2005 at the WHO-AFRO Regional Committee meeting held in Maputo, 46 Ministers of Health unanimously declared TB an emergency in Africa. A resolution at this meeting warned that unless "urgent extraordinary actions" are in place, the situation will worsen and the 2015 Millennium Development Goals will not be met (Barr, Padarath and Sait, 2004:4).

The Stop TB partnership has developed a Global Plan to Stop TB that covers the period 2006-2015 building on the Partnership's first plan covering 2001-2005. This plan envisages new improved TB drugs (with shorter periods of treatment) and TB diagnostic tools by 2010. It also envisages a TB vaccine being commercially available by 2015. (NDOH, TB Strategic Plan 2007-2011:6)

Tuberculosis is also a priority disease in South Africa: the cure rate for new patients of 64% was still below the World Health Organization (WHO) target of 85% in 2004 (Barr, Padarath and Sait, 2004:8). According to the same report it was reported that in some provinces (Gauteng, Eastern Cape and Western Cape) the cure rate was as low as 40%. The estimated incidence of TB per 100 000 population was 526, and an estimated 60% of adults with TB are also HIV positive. South Africa was ranked third in the WHO AFRO region by the number of TB cases (Barr, Padarath and Sait, 2004:4)

According to the Department of Health in 2007 South Africa was ranked seventh (from ninth in 2001) on the list of 22 countries hardest hit by TB globally, and third in terms of TB incidences the same picture as reflected in 2004 Stop TB partnership report. (TB National Strategic Plan 2007-2011) Although the incidence rate has increased by almost a quarter as it is reported that about 718 in 100 000 people in South Africa are infected with tuberculosis, where the mortality rate due

to the disease is about 73 per 100 000 (National Department of Health(NDOH) 2007)

There were also variances in tuberculosis incidence, depending on the race, especially prior to 1994. Incidence ranged from less than 20 per 100 000 in the white community to 400-600 per 100 000 in black and coloured communities. (Barr,Padarath and Sait 2004:8)

It is also disturbing to note that according to the South African National Tuberculosis Association, one South African dies from TB every hour. (Barr, Padarath and Sait 2004:10) The situation is worsened by poor commitment or political will of countries to reduce the burden of tuberculosis.

TB affects mainly the potentially economically active demographic group in South Africa and also linked to poverty associated problems like malnutrition, over-crowding, poor air circulation and poor sanitation. For example in 1999, 61% of the total reported cases were aged 20-39 and the Eastern Cape which has one of the highest incidences of TB, is also one of the poorest provinces in the country. (Barr, Padarath, and Sait, 2004:12)

One of the top ten strategic priorities for the health system in South Africa 2004-2009 is the management of infectious diseases, of which TB is one of the most important.

The Minister of Health of South Africa declared TB to be a national crisis in 2005 and a TB crisis management plan was developed. This plan focused in four health districts with the highest disease burden in the country and poor treatment outcomes with the aim of intensifying the efforts to improve the TB programme. (NDOH TB National Strategic Plan for South Africa 2007-2011)

Several guidelines on TB and related issues were then published, they included some of the following: Guidelines for the management of TB in South Africa, Guidelines of the management of Drug resistant TB in SA; Infection control guidelines; Guidelines for best practice in containment of multi-drug treatment

(MDR) and extreme drug resistant (XDR) TB in SA and TB and HIV guidelines. (NDOH TB Strategic Plan 2007-2011:8)

The National Department of Health (NDOH) through the NSP 2007-2011:31 developed guidelines for the profit private medical sector which aimed to increase access to treatment, care and support for TB patients the private sector health care providers will be engaged with. NDOH TB Strategic Plan, (2007-2011:30-31) explored possible areas of collaboration together with relevant private practitioners, non-governmental organizations, business sector, private hospital organizations and other government departments like Department of Correctional Services, Military, Labour, etc. The role that General Practitioners could play included the following:

- Identify TB suspects
- Diagnose TB
- Prescribe and supervise treatment
- Trace TB treatment defaulters
- Record keeping
- Case notification
- Contact tracing

The National Tuberculosis Control Programme (NTCP) which was established in 1995, based on World Health Organization's Directly Observed Therapy Short-course strategy (DOTS) to replace the non-standardised short course chemotherapy. It was also decided to provide free medical treatment for people with TB. (Barr, Padarath and Sait, 2004:18)

The role of the private for profit providers is relatively limited as the public health sector is predominant in the provision of TB care across South Africa. It is estimated that only about 5% of TB patients are treated within the private sector. (Barr Padarath and Sait, 2004:12) This is in contrast to the estimated out of pocket private health expenditure in South Africa generally cited at 46%. (Barr Padarath and Sait, 2004:18) The general practitioners have two options namely to diagnose

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and then refer to the public sector and just act as treatment supporter or treat the patient after obtaining the drugs from the public sector. The main challenge is that there is not enough capacity for monitoring and evaluation of the TB services rendered by GPs (Barr Padarath and Sait, 2004:4)

1.3   Justification of the study

The study will improve management of TB in terms of proper diagnosis strategies and understanding the knowledge and practices followed by the private medical practitioners.

General Practitioners as primary healthcare providers and thus entry level of patients into the health care system are the first contacts of these patients within the health care system could help with early detection of TB. Literature in Asian countries (there was not much literature on the management of TB by Private General Practitioners in South Africa) shows that General Practitioners are not investigating for TB, treating and generally managing TB properly. General Practitioners like other health care service providers do not have a high index of suspicion of TB and thus contribute to the delay in the diagnosis and treatment of TB. (Pronky, Makhubela, Hargreaves, Tollman and Hanster, 2001:23).

The private medical practitioner's knowledge in terms of experiences was used against the background of years in medical practice, education levels; diagnosis, practices and management of TB patients. Examining these aspects would identify factors contributing to the understanding of the experiences of private medical practitioners and the target population in terms of TB management.

The level of knowledge in managing TB patients will be evaluated by means of assessing the number of TB patients seen in the different practices, how these patients are investigated, including how many sputum specimens are taken when investigating the patients. The number of follow-ups will also be evaluated

including the regimen and criteria used for putting patients in different regimen. Interaction between the GP and the referral sites will also be assessed.

The usage of the National TB guidelines will be assed. Participation in DOTS strategy will be assessed as this is one of the key points in effective management of TB.

The International TB Program together with South Africa's National Strategic Plan for TB advocates that sputum smear microscopy will remain the mainstay for the diagnosis of pulmonary TB, and culture will be conducted in all TB suspects who are HIV positive and smear negative. The second standard in TB diagnosis state that "all patients suspected of having pulmonary TB should have at least two, and preferably three sputum specimens obtained for microscopic examination".

Regarding treatment of TB, one of the standards state that "all patients who has been treated previously should receive an internationally accepted first line treatment regimen using drugs of known bio-availability. The initial phase should consist of two months of isoniazid, rifampicin, pyrazinamide and ethambutol. The doses of antituberculosis drugs used should conform to international recommendations." (International Standards for Tuberculosis Care, 2006:30) This means that previous history of TB is essential for maximum management of TB as the regimen would vary from that of a patient without history of TB.

Over the past decade, the number of people diagnosed with TB has escalated. There was a threefold increase in the number of people with TB, from 109 000 in 1996 to 341 165 in 2006. (Tuberculosis Strategic Plan for South Africa, 2007-2011). During this time, the incidence has increased from 269 cases of TB per 10 000 population to 720 per 10 000 population. The proportion of people with extra-pulmonary TB has also trebled, but appears to have stabilized at around 15% (Tuberculosis Strategic Plan for South Africa, 2007-2011). The proportion of people with TB who are co-infected with HIV is around 55% (Drug Resistance

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Surveillance, MRC, 2001-2002). The treatment outcomes for new smear positive patients from 1996 to 2005, both the cure rates and successful treatment completion rates, initially declined to 50% and 60% respectively in 2001. Since then, there has been a steady increase to 57.7% and 71.1% respectively (Tuberculosis Strategic Plan for South Africa, 2007-2011).

Some of the weaknesses that were discovered when reviewing the 2001-2005 TB Strategic Plan included the fact that the role of partners had not yet been expanded beyond providing TB treatment support; they are not fully utilized. Furthermore, there was inadequate inter and intra Departmental collaboration at provincial and local government levels.

A 2001 study conducted in South Africa showed that considerable delay exists between symptom onset and treatment initiation among pulmonary tuberculosis patients. (Pronky et al, 2001:25).
While a substantial delay was attributable to late patient presentation, an important, preventable period of infectiousness was caused by the failure of recognized clinical services to diagnose tuberculosis among symptomatic individuals (Pronky et al, 2001:25).

All the above challenges led to the late presentation of TB patients to health facilities, late detection of TB and high treatment interruption.

Tuberculosis is one of the leading causes of death in South Africa. Data from Statistics South Africa (2007) indicated that TB was the leading cause of death in South Africa in 2005, accounting for 12.5% of deaths (a total of 73 903 deaths), an increase from 7% (22 071 deaths) in 1997.
HIV is the driving force behind the TB epidemic in South Africa, with more than half of current TB cases also being co-infected with HIV.
This study will contribute to the understanding in terms of practices that private medical practitioners follow in the management of TB, in an attempt to highlight

weaknesses in the control of TB, with the aim of eventually improving health service delivery.

1.4 Problem statement

The management and treatment of TB is a Public Health priority and if private medical practitioners are brought on board in time, the impact on case detection, treatment and cure rate can be improved.

This study is an attempt to understand private medical practitioner's knowledge and practices in terms of the diagnosis and management of patients with TB in Tshwane, Gauteng.

1.5 Research goal

The goal of this study is to seek to understand the current practices of private medical practitioners in Tshwane and to see how best to maximize their contribution to TB diagnosis and management.

1.6 Research Questions

The research questions that arise from this study are:
- What are the socio-demographic characteristics of private medical practitioners?
- What are the experiences of private medical practitioners regarding their knowledge of diagnosis and management of tuberculosis?
- Are private medical practitioners complying with national guidelines in diagnoses and management of tuberculosis?
- What is the perceived role of private medical practitioners in diagnoses and management of tuberculosis?

1.7   Study Objectives

The objectives of the study are:

- To identify the socio- demographic characteristics of private medical practitioners in Tshwane, Gauteng Province.
- To determine the experiences of private medical practitioners regarding their knowledge of diagnosis and management of tuberculosis in Tshwane, Gauteng.
- To determine if private medical practitioners comply with the National Guidelines for diagnoses and management of tuberculosis in Tshwane, Gauteng province.
- To determine the role of private medical practitioners in diagnoses and management of tuberculosis, in Tshwane Gauteng province.

1.8   Definitions

DOTS: Directly observed therapy short-course strategy (will be discussed under literature review) (ISTC: 2006).

Private General (Medical) Practitioners: All the doctors rendering service for profit and practicing most of the time in the private sector. (Sinanovic and Kumaranayake (2006:795)

National TB Control Programme was established in 1995, based on the World Health Organization's Directly Observed Therapy Short-course strategy to replace the non-standardised short-course chemotherapy. (Schneider et al, 20037)

1.9   Conclusion

The chapter gave an overview of the background and introduction on the knowledge of private medical practitioners in diagnoses and management of tuberculosis, in Tshwane Gauteng province. Furthermore, it depicted what the study aimed to achieve.

CHAPTER 2   Literature Review

2.1   Introduction

Within a global perspective, South Africa is one of the countries worst affected by the tuberculosis epidemic, and it is second to Zimbabwe in terms of the combined burden of the overlapping TB-HIV epidemic. In the developed world TB incidence rate has now fallen below 20/100 000. (South African National TB guidelines 2008:9) This can be ascribed to improved socio-economic conditions and less crowded conditions. (Barr Padarath and Sait,, 2004:8-12)

The World Health Organization in 2006 estimated there were 8.9 million new cases of TB globally in 2004, of which 3.9 million were smear positive. The incidence rate of TB was growing at approximately 1.1% per year in 1997 but bat 0.6% in 2004. Five countries (India, China, South Africa, Indonesia and Nigeria) accounted for 60% of additional cases notified in 2004. (Barr Padarath and Sait, 2004:15)

The ranking of countries by number of TB cases has drawn to the 22 countries that account for 80% of the global TB burden. (South African National TB guidelines 2008:9)

This chapter includes a literature review on TB in terms of private medical practitioner's knowledge on the diagnoses and management of tuberculosis. The following aspects are reviewed:
- Global, Africa and South Africa's approach to TB
- Strategies to management TB
- Role of policy and private medical practitioners on TB practice.

2.2 Global, Africa and South Africa's approach to TB

2.2.1 Global approach to TB

Literature show that all the countries are bound by the International TB Standards and report to the WHO. In 2001 WHO released a document on involving private medical practitioners in TB control: issues, intervention and emerging policy framework. This was intended to standardise the involvement of private practitioners in TB management as different countries were fragmented and there were no clear guidelines on how to involve GPs in TB management.

ISTC was developed by the TB Coalition for Technical Assistance (TBCTA) in 2006 in partnership with Centre for Disease Control and Prevention, American Thoracic Society, WHO, International Union against TB and lung Disease, KNCV Tuberculosis foundation (TBCTA: 2006:5).

The purpose of the *International Standards for Tuberculosis Care (ISTC* http://www.who.int/tb/publications/2006) is to describe widely accepted level of care that all practitioners, public and private, should seek to achieve in managing patients who have, or are suspected of having, tuberculosis (TBCTA 2006:11). The *Standards* are intended to facilitate the effective engagement of all care providers in delivering high-quality care for patients of all ages, including those with sputum smear-positive, sputum smear-negative, and extra pulmonary tuberculosis, tuberculosis caused by drug-resistant M*ycobacterium tuberculosis* complex (*M. tuberculosis*) organisms, and tuberculosis combined with human immunodeficiency virus (HIV) infection (TBCTA 2006:13).

2.2.2 Africa and South Africa approaches

Tuberculosis (TB) constitutes a major public health problem in most developing countries of the world; it accounts for the largest burden of mortality due to any infectious agent worldwide. (Khan, Malik, Hussain, Ali, Akbani, Hussain, Kazi and Hussain, 2003:770). Worldwide, there are approximately nine million new cases

occurring and three million people dying from TB annually (Yadav, Patel, Unadkat and Bhanushali, 2006:259).

A study conducted by Schneider, Ogden and Lush, (2003:3) on analysis of policy transfer: tuberculosis policy and DOTS in South Africa found out that TB management in South Africa went through serious transition over the years. In the apartheid era, there were considerable number of role-players including the government, the Medical Research Council (MRC) and the medical profession. The approach to TB was not standardized and reflected a balkanized political landscape of racial and ethnic health authorities of the time. Even though large budget was allocated for the purchase of TB drugs, there were inadequacies in the management of TB. A national TB policy was formulated in 1979 (Lee & Buch 1991) as quoted by (Schneider et al, 2003:4) but unfortunately implementation of this policy was not properly done.

Different associations including South African National TB Association (SANTA), TB Charity and Life-care groups were used to treat TB, whereby the public sector and other centres would diagnose TB and then send a patient for treatment at these associations. In other areas local governments were responsible for follow-up of TB patients. In rural areas ambulatory approaches of TB care were instituted. The different multiple uncoordinated health jurisdictions meant that drug regimen, periods of hospitalization and record keeping varied greatly.

TB notification was compulsory and monitoring of TB cases occurred with some regularity in certain parts of the country e.g. SANTA. (Schneider, Ogden and Lush, 2003:4). The fragmented nature of the health system made national standardization and coordination almost impossible.

Treatment completion ranged between 28% to maximum 41% in the different parts of South Africa. (Schneider, Ogden and Lush, 2003:4).

The spread of TB to epidemic proportions in South Africa has been tied to the history of colonialism and discovery of gold in the late 19th century and the resultant influx of migrant labourers in the mines. (Schneider et al, 2003:4)

In 1982, University of Cape Town (UCT) hosted a conference on TB in SA where alternative viewpoints on TB were elaborated. Different TB control models were developed inspired by the 1978 Alma Ata Declaration on Primary Health Care (PHC) (Schneider et al, 2003:4). These models were based on empowering patients to participate in decision making regarding their care and improving the patient-health worker relationship. Several conferences were held, in 1991 a book titled "A Century of Tuberculosis: South African Perspective" by Coovadia and Benata was published and outlined an alternative public health agenda for TB. The alternative agenda include development of different TB policies to effectively manage TB. (Schneider et al, 2003:5)

From 1990-1994 there was political change and beginning of National TB policy.

There were early changes in TB policy between 1994 and1995. The fragmented authorities of the past were amalgamated into one national and nine provincial governments. In 1994 the responsibility of TB control became located in the Communicable Disease Directorate. The directorate convened stakeholder groups to formulate policy on treatment regimen, childhood TB, laboratory services and monitoring. (Schneider, Ogden and Lush, 2003:6).

In 1996 a joint national review of TB control in South Africa was conducted by officials from WHO (AFRO and Geneva offices), the IUALTD, national and provincial departments of health and local research researchers; challenges were identified. (Schneider, Ogden and Lush, 2003:7). In summary the TB programme was well funded but poorly managed. (Schneider, Ogden and Lush, 2003:7) TB programmes were funded but the outcome of TB did not reflect good results. The infection rate continued to rise and the death rate also increased. A new set of recommendation for TB programme was established.

In 1997- DOTS strategy was introduced, and there were challenges in some places like KwaZulu Natal province on the implementation. Official TB control policy, the register was implemented fully, treatment standardized, case definition

standardized and the diagnostic policy decentralization done. (Schneider et al, 2003:11)

South Africa has one of the highest TB incidence rates in the world, and this rate is worsening with the growing human immunodeficiency virus (HIV) epidemic and development of drug-resistant strains (Tuberculosis National Strategic Plan for South Africa, 2007-2011). According to the former Minister of Health in South Africa, Dr Manto Tshabalala-Msimang,

> "Tuberculosis is ravaging our country, affecting the lives of people; mainly the young economically active group, resulting in a decrease in the outputs of the country's labour force and consequently reducing the gross domestic product … In order to achieve effective TB control, a coordinated multi-sectoral approach must be adopted throughout the country. This plan provides the framework for what needs to be done to reduce the burden of TB and eventually eliminate TB in the country" (TB National Strategic Plan 2007-2011: 4).

The plan also highlights the need for availability of skilled human resources, sustained adequate funding, partnership building and mobilizing communities. Likewise, fighting poverty to accelerate economic and social growth is critical for the success of the plan (TB National Strategic Plan 2007-2011).

At the WHO-AFRO Regional Committee meeting held in Maputo in 2005, forty-six Ministers of Health declared TB to be an emergency in Africa (TB National Strategic Plan 2007-2011:6). The reason for this strategy was the fact that TB infection was continuously rising. Also in 2005, the Minister of Health declared TB to be a national crisis in South Africa, and a TB crisis management plan was developed. This plan focused on the four districts, namely Mpumalanga, Eastern Cape, KwaZulu-Natal and Northern Cape, which exhibit the highest disease

burden in the country and poor treatment outcomes, with the aim of intensifying the efforts to improve the TB programme (TB National Strategic Plan 2007-2011:10).

According to the TB National Strategic Plan 2007-2011, between the years 1996-2006 the number of people diagnosed with TB in South Africa increased three-fold, from 109 000 in 1996, to 341 165 in 2006. During this time, the incidence has increased from 269 cases of TB per 100 000 population to 720 per 100 000 population (TB National Strategic Plan 2007-2011). The proportion of people co-infected with HIV is around 55% (TB National Strategic Plan 2007-2011).
The main indicators with proposed in the National Strategic Plan 2007-2011 are case detection rate, cure rate and treatment success rate. In this regard these indicators will be hard to achieve due to poor management practices in the public sector including poor working conditions, long waiting periods, low paid workforce, poor and lack of resources and shortage of staff. The target indicators include case detection rate is 70%, cure rate at 85% and treatment success rate of more than 85%.

2.3   Importance of TB
Sub-Saharan Africa has an estimated 1.6 million new infectious cases of tuberculosis each year. The disease causes about 600 000 deaths annually making tuberculosis one of the most common preventable causes of death from a single infectious agent in Africa. Poor living conditions and HIV epidemic attributes to the burden of tuberculosis. (Chakaya, JM.,Nshuti, L., Kibuya, D., Nyarko, E., Uplekar, M., 2004:1) TB is a serious health problem with an uneven impact around the world and needs effective control to combat.

2.4   Strategies to management of TB

Different strategies were developed to curb the burden of TB was developed. These include the DOTS strategy in 1996 and the International Standards for tuberculosis care, diagnosis treatment in Public Health (TBCTA.ISTC, 2006:1-60).

The *Standards* are intended to facilitate the effective engagement of all care providers public and private, in delivering high-quality care for patients of all ages, including those with sputum smear-positive, sputum smear-negative, and extra pulmonary tuberculosis, tuberculosis caused by drug-resistant *Mycobacterium tuberculosis* complex (*M. tuberculosis*) organisms, and tuberculosis combined with human immunodeficiency virus (HIV) infection (TBCTA, 2006:5).

Reduction of TB burden in most countries like South Africa, India, and Pakistan is an important public health priority. Equity promotion and poverty alleviation are central parts of the United Nations Millennium Development Goals (MDGs). The countries like South Africa, India, and Pakistan developed their National TB Programme Guidelines based on World Health Organization's DOTS strategy and MDGs (South African National TB guidelines, 2008:9). Most of the guidelines are focused on TB management by the public health care providers and involvement of the private practitioners is limited. The reason for this was the fact that TB was mainly treated in the public sector.

- **DOTS**

DOTS is the brand name that has been given to the internationally promoted strategy for TB control. DOTS is a comprehensive TB control strategy, but is often summarized as containing the following five elements:

> ➢ Political and administrative commitment to TB control.
> ➢ Diagnosis based on sputum smear microscopy of patients reporting to health services;
> ➢ Regular supply of good quality drugs;
> ➢ Short-course chemotherapy given by direct observation for at least the first two months;
> ➢ Systematic recording and reporting of cases and accountability of health care staff.

DOT means that an observer (treatment supporter) watches the client swallowing the tablets, in a way that is sensitive and supportive to the client's need. (SA National TB guidelines, 2008:50).

- **Diagnosis patterns**

The ISTC standards are supposed to be used by the public and private providers as explained above.

The literature as found out by the researcher reveals the experience of a number of developing countries in East Africa, the Middle East, and Asia as outlined under the sub-titles below. These countries are amongst the top ten with the burden of TB in the world. There is no documented South African experience on the subject under investigation.

There are a total of 12 standards. The first six standards relate to diagnosis and, as outlined by the TBCTA, (2006:11), and should be followed by all the people treating TB patients including both practicing in the public and the private sector. These standards deal with the symptoms and signs of that would aid in the diagnosis of tuberculosis.

The last six standards relate to the treatment of tuberculosis, (TBCTA, 2006:29) including pulmonary and extra-pulmonary tuberculosis, newly diagnosed and re-treatment cases.

A study done in Nigeria on the knowledge, attitudes, and practices regarding tuberculosis among General Practitioners revealed that a significant number of physicians in private practice did not adhere to the standard norms of prescribing anti-TB treatment, did not know the regimen as recommended by the NTCP, and often prescribed wrong regimen. (Dosumu, 2008:25)

Shimeles, Aseffa, Yamuah, Tilahun and Engers (2006: 1172) report that the knowledge of private General Practitioners about recognition of TB, as well as their perceptions about the public health significance of TB control, is influenced by several factors: the provider's educational background, experience with managing TB cases and knowledge of the National TB Programme (NTP) guidelines. The authors mention the significant fact that, "…there is a lack of trust among public health care providers about the reliability of the diagnosis of TB made by private practitioners" Shimeles, Aseffa, Yamuah, Tilahun and Engers (2006: 1173). The study revealed that almost a third of all cases in Addis Ababa that were registered at the public health centres had been diagnosed with TB by the private sector. All the cases that were diagnosed in the private sector were referred to the public health system for initiation of treatment and further monitoring. However, the study by Shimeles at al, 2006 does not give an indication of how a diagnosis of TB is made in the private sector. (Shimeles et al, 2006: 1173)

- **Diagnostic symptoms**

In contrast, a study from Karachi, Pakistan, which is ranked sixth in terms of global TB burden by the World Heath Organisation gives an in-depth review of the diagnostic methods of private practitioners in that country (Khan et al, 2003:37) report that the majority of physicians were aware that cough, fever and weight loss were the main presenting symptoms of TB, but fewer knew that blood in the sputum, poor appetite, and chest pain could also be associated with TB.

Just over half of the private practitioners (55%) preferred to diagnose TB patients themselves rather than refer them to a government or private sector centre (Khan et al., 2003:49).

Fifty eight percent of these private practitioners in Karachi considered sputum microscopy as the best diagnostic tool for TB, while 20% regarded chest radiography as the diagnostic tool (Khan et al., 2003:54).

- **TB investigations**

Another study from the Middle East, by Shirzadi, Majdzadeh, Pormalek & Naraghi (2003:796-804), found that in the Islamic Republic of Iran 87.3% of the private practitioners that were polled indicated that sputum smear microscopy was the principal diagnostic method.

A study from Syria, which is in close proximity to the Islamic Republic of Iran, conducted by Maamari (2005:82), similarly showed that 73.8% of private practitioners stated that they would recommend a sputum smear examination to every patient with suspected TB.

A study from India by Greaves, Ouyang, Pefole, McCarthy and Cash (2007:99), which was done in the Kerala region, shows the knowledge of private practitioners regarding the diagnosis of TB as similar to the study by Shirzadi et al. (2003:799); Geaves et al. (2007:45) found that 80% of the private practitioners polled used sputum microscopy as a first line test.

An earlier study from Jamnagar city in India by Yadav, Patel, Unadkat and Bhanushali; 2006:259 found that all the practitioners that were polled had a fairly good grasp of the TB presenting symptoms, viz. cough lasting longer than 3 weeks, weight loss , low grade fever , and anorexia . However, when it came to investigations, less than 10 % of the doctors mentioned sputum examination as the investigation of choice, followed by sputum and chest radiography (Yadav et al., 2006:259).

From the Asia-Pacific region, a study by Portero & Rubio, (2003:26) was conducted, which revealed slightly worse results when compared to Yadav et al (2006:260). The diagnosis of TB was mainly based on chest radiography, symptoms as given by patients, or physical examination with poor evidence of sputum smear microscopy as the diagnostic tool of choice.

Although data is scarce, it has been demonstrated that the TB management practices of private health providers are often poor. There is a tendency for emphasis on chest X-ray by GPs with little use of sputum smears for diagnoses or follow-up of TB patients.

2.5   Role players in management of TB

2.5.1 Role of guidelines for tuberculosis management

South Africa has the seventh highest TB incidence in the world. Co-infection with HIV is worsening this problem, and attenuating the natural course of the disease as it is known. The number of people diagnosed with TB has grown steadily in the last ten years, and this led to the government of South Africa declaring TB a national crisis. The South African Department of Health has developed a National Strategic Plan for TB. This plan provides the framework for what needs to be done to reduce the burden of TB and eventually eliminate it from the country.

The ISTC has nine standards out of seventeen standards, dealing with treatment (TBCTA, 2006:7). They talk directly to General Practitioners and health care workers who are involved with the management of TB patients, and are directly linked to the issue of compliance to guidelines.

The standards differ from existing guidelines in that standards present what should be done, whereas guidelines describe how the action is to be accomplished. Standards provide the foundation on which care can be based; guidelines provide the framing for the whole structure of care.

Guidelines and standards are, thus, complementary to one another. A standard does not provide specific guidance on disease management but, rather, presents a principle or set of principles that can be applied in nearly all situations. In general, standards do not require adaptation to local circumstances.

When it comes to knowledge of and adherence to National Guidelines on TB management, the literature reveals a uniform pattern of ignorance, apathy and downright stubbornness amongst the private practitioners (Portero and Rubio, 2003:333).

In the study by Shimeles et al., 2006:1174, the doctors mentioned different types of regimes for treating TB: 34% mentioned two regimens, 25.8% three regimens and 19.1% four regimens; 3.4% listed six to seven types. Another 3.4% said they were unaware of any treatment regimens. The complete list of treatment regimens was correctly given by only 9.7% of the doctors. With regard to treatment monitoring, only 5% correctly indicated sputum microscopy as a monitoring tool. Similarly, Yadav et al. (2006:260) found that 69.05% of the doctors had the knowledge regarding the categorisation of TB patients as per NTP programme. The sputum examination during follow up was adopted correctly by only 9.52% of the practitioners.

An even more damning report was produced by Portero & Rubio (2003:333), who found that only 24.2% of the private practitioners were well acquainted with the Filipino NTP guidelines. Regarding the attitude towards the NTP guidelines, 76.3% of the practitioners did not agree with the national policy on TB control, and half of them did not agree with the obligatory case reporting of new TB cases to the Department of Health.

The news from Pakistan is not good either: both Khan et al. (2003:769-773) and Hussain et al, (2005:55) found gross deficiencies in the adherence of the doctors to the NTP guidelines. Hussein *et al.* found that only 3.7% of the prescriptions met the required standard for TB patients as laid down by NTP. Khan et al. found that a large number of doctors were either giving inappropriate doses or prescribing treatment for a much longer period than recommended in the NTP guidelines.

Shirzadi et al. 2003:799, from Iran, had similar findings: only 34.5% knew the correct practice of drug dosage, duration of treatment and use of combination therapy. For monitoring of treatment, 72.97% used sputum smear microscopy.

An important aspect of the guidelines and standards is record keeping. Only Shirzadi et al. 2003:799 picked up a 78.2% record keeping rate. Shimeles et al. (2006:1175); Portero & Rubio (2003:332); and Khan et al. (2003:772) found rates of 20%, 20.4% and 22.5% respectively.

2.5.2 Role of private medical practitioners

A study by Bateman, Feldman, Mash, Fairall, English and Jithoo (2008:69-75) revealed that although public sector primary care is free in South Africa, access to care is limited by other financial and structural barriers. For example low-paid workers may not afford to take time off to attend public clinics of which majority of them open during working hours. Some public clinics close their doors half-way in the morning because their waiting rooms are already full. By contrast the private General Practitioners rooms are easily accessible to those who can afford. Their extended working hours, and shorter waiting periods are an advantage. The distance to, travel time, and/or cost of transportation to clinics in rural areas are also important deterrent to attendance.

Mills, Brugha, Hanson and McPake (2002:33) define the private health sector as comprising all providers who exist outside the public sector, whether their aim is philanthropic or commercial, and whose aim is to treat illness or prevent disease. They include large and small commercial companies, groups of professionals such as doctors, national and international non-governmental organizations, and individual providers and shopkeepers (Mills, Brugha, Hanson & McPake, 2002:36).

The private sector represents a resource that is available and used even in the poorest countries and among lower income groups (Mills et al., 2002:55). Private health care providers outnumber public health care providers in some countries

and often offer better geographical access and more personalized care than the public facilities (Lonnroth, Upleker, Arora, Juvenkar, Lan, Mwaniki & Pathania, 2003:89). Public health facilities, on the other hand, are appreciated for their ubiquitous nature, variety of services and affordability, but are perceived to be of low quality, with long waiting times, unmotivated staff, shortages of medicines and lack of privacy; whilst the latter results in the community being more attracted to the private sector (Shimeles, Aseffa, Yamuah, Tilahun & Engers , 2006:35).

Studies of health-seeking behaviour of TB patients in most Asian countries (India, Pakistan, Vietnam and The Philippines) show that between 50% and 80% of TB patients seeking treatment initially report to private General Practitioners for their diagnosis and treatment (Khan, Malik, Hussain, H., Ali, Akbani, Hussain, S.J., Kazi & Hussain, S.F. 2003:55, and Portero & Rubio, 2003:35).

As evidenced by the above literature reviews in different countries, it is evident that even though the public clinics can be free, some people still consult private General Practitioners for different reasons. (Bateman et al, 2008:55; Khan et al, 2003:78 and Portero & Rubio, 2003:90)
The main reasons for consulting private providers according to a study by Sinanovic and Kumaranayake (2006:798) include better geographical access, shorter waiting times, flexible hours, greater availability of staff and drugs and greater confidentiality due to stigma associated with disease. The positive aspects of the private practitioners' TB related practices are countered in developing country contexts by practices such as practitioners' disregard of recommended drug regimens, their virtual inaction with regard to treatment default and their failure to keep even minimum essential records.

The clinical management practices of private General Practitioners are often inadequate. Private General Practitioners have been shown to prescribe inappropriate treatment for diseases such as tuberculosis (Lonnroth, Thuong, Lambregts, Quy & Diwan, 2003:580-586).

Further reports indicate that the poor quality of care delivered by non-programme providers hampers global tuberculosis control efforts (Hopewell, Migliori & Raviglione, 2006:428-429).The authors further report that a global situation assessment reported by the World Health Organisation (WHO) suggested that delays in establishing a diagnosis of TB are common. The survey also shows that clinicians who work in the private sector often deviate from standard internationally recommended TB management practices. These deviations include underutilization of sputum smear microscopy and over-reliance on radiography for diagnosis, as well as inappropriate use of poorly validated diagnostic tests, such as serological assays. In addition, many practitioners use non-recommended drug regimens with incorrect combinations of drugs, and mistakes occur in both drug dosage and duration of treatment (Shimeles *et al,* 2006:1174; Hussain, Mirza, Qureshi & Hafeez, 2005; Khan, *et al*, 2003:17.) There is paucity in the literature regarding the South African experience as regards the management of TB by private General Practitioners. Much of the experience in the literature is from the Indian subcontinent and Asia, and will be detailed in this chapter.

The private health sector plays an important role and, even in developing countries, is accessed by more than 60% of the population. There are perceived advantages to this sector, but disadvantages also abound. With TB being a national crisis as mentioned above, the role of the private practitioners in the combating of this disease is as important as ever.

Several challenges were identified hampering implementation and expansion of DOTS strategy in African regions and they include: weak public health care systems, care seeking behaviours of TB patients, inadequate knowledge, awareness, skills of health care providers, lack of community involvement, non-collaboration with the private health sector, impact of health sector reforms, poverty and HIV epidemic among other things. (Baker, Millard, Malatsi, Mkoena, Ngoatwana, Agarawal, de Valliere, 2006:672)

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According to WHO Regional report (2004), there is significant delay of TB diagnosis which is attributable not only to GPs. In most countries e.g. Ghana 50% of diagnostic delay was attributable to the failure of medical services to diagnose TB. Provider delays also reported in Botswana, Kenya and Malawi. (Uplekar, Pathania, Raviglione, 2004:25)

A study done in rural SA, on health seeking behaviour among TB patients found out that 41% first consulted public hospital, 31% public primary health care clinics, 15% spiritual/traditional healers while only 13% consulted GPs first. (Pronyk et al, 2001:8).

Another study done in Limpopo, South Africa found out that health seeking behaviour was not the same as outlined above, 51% of symptomatic patients first consulted traditional healers, 17% public clinics, 2% public hospitals, 7% church/faith healers, only 6% consulted GPs first. (Baker, Millard, Malatsi, Mkoena, Ngoatwana, Agarawal, de Valliere, 2006:672)

A 1996 study in Blantyre Malawi showed that more than half of all sputum smear positive patients had visited a traditional healer before seeking regular medical care. (Baker et al, 2006:672)

With the above literature in mind, there is an urgent need to have partnership between the public and private health care providers with involvement of the community, non-governmental organizations and traditional healers especially in the African continent.

2.5.3 Role of public-private partnership

Seeking a better understanding of the extent and nature of private involvement in TB care, the World Health Organization initiated a global situation assessment in 1999. Twenty three countries in the six WHO regions were visited as part of the assessment, including 10 of the 22 high burden countries identified as priorities for

global TB control. The assessment focused on private for profit practitioners. (Uplekar et al, 2004:57-70)

The assessment confirmed a substantial TB caseload and unsatisfactory management practices in the private sector. Most National TB Programmes (NTPs) ignored the private sector and focused on empowering the governments on the management of TB despite compelling case for collaboration with private practitioners in the delivery of TB care. WHO identified that there were opportunities to increase and speed up case finding, improve treatment outcomes through enhanced patient acceptance, share service delivery load and building long term sustainability in the TB control efforts. Options available to NTPs range from exclusively public delivery system through parallel and independent public and private systems to a coordinated public-private mix.

The assessment further revealed that very little precise information was available on the size of TB caseload in the private sector. Reliable information in the private sector could only be found in three of the 23 countries visited and include South Korea, The Netherlands and the Czech Republic. South Africa was one the countries visited with no reliable information.

Reliable and successful local PPP initiatives in South Africa were identified to be working in the Kempton Park area and in the Mpumalanga Province. In Kempton Park, 37% of 388 TB patients were under DOTS by GPs in the area with the supervision of local TB team. (Uplekar et al, 2004:57)

In Nairobi, Kenya some leading private providers and hospitals agreed to adhere to a patient management protocol which included the use of sputum microscopy for the diagnosis of TB, specific drug regimes and maintenance of patient control.

A somewhat disturbing study done by Schneider, Chabikuli, Blaauw, Funani and Brugha, (2005:21-30) in Gauteng Province, South Africa on the quality of care regarding STI consultations, revealed that despite regular interactive interventions with continued medical education of the polled GPs there was a substantial improvement on the quality of drug treatment of urethral discharge but not on

pelvic inflammatory disease among both intervention and referenced GPs. The authors concluded that improvement in STI quality were the result of a background secular trend rather than the intervention itself. This lesson is essential for TB management interventions and continued medical education.

Sinanovic and Kumaranayake (2006:795-801) evaluated the quality of tuberculosis care provided in different models of public-private partnership in South Africa. The study found out that there were a few tried and tested models of interventions to encourage private providers to deliver good quality TB services through public-private mix projects in India, the Philippines, Vietnam and Nepal. Evidence shows the importance of careful monitoring of quality of care delivered by private providers though various public-private partnerships (PPPs). These different public-private mix approaches with respect to TB are small-scale, and empirical data on their performance are limited. Whilst much of the understanding of the private sector and its involvement in TB treatment comes from Asia, in Africa there is extremely limited empirical data on the involvement of private providers in the provision of TB treatment, and even less available evidence on their performance. The study focused on the involvement of community based Non-Governmental Organizations (NGOs) and employer-based medical services and concluded that partnership with these organizations is essential and there should be constant monitoring and evaluation of the quality of service rendered.

According to WHO (2000), the role of private medical practitioners particularly in the management of sexually transmitted diseases and in the treatment of tuberculosis cannot be underestimated. This is especially true in Asia as studies have shown that 50-70% of such patients are cared for in the private sector.

Uplekar, Pathania and Raviglione in (2001:12) suggest three alternative approaches of the NTCP to maximize the involvement of private sector in the management of tuberculosis. "The first involves promoting public systems and legislating against private providers engaging in TB care. The second involves

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focusing on the public service and allowing the private sector to constitute an independent parallel TB care delivery system. The third and the last option involves collaborating with the private providers by means of providing training, supply TB medication free of charge and persuading private providers to report TB cases." (Uplekar, Pathania and Raviglione in 2001:12)

A policy framework should be followed and memorandum of understanding should be signed between the public and the private providers so as to ensure responsibility and monitoring and evaluation of the PPP.

2.6   Conclusion

From the literature review, authors highlighted the importance of management and diagnoses of TB in terms of diagnostic tests, treatment regimes, role of private sector, and the importance of the following guidelines: the international TB control standard programme, the South Africa's national TB strategic plan 2007-2011, South African National Tuberculosis guidelines 2008 and the DOTS strategy.

The literature regarding the knowledge in terms of experiences in the management of TB in Africa is very limited. Most of the literature available is from India and Asian countries and even though these are developing countries like Africa there are different context in their way of practice. The review showed that in all these countries, private practitioners were flouting these guidelines, and there was general ignorance about their existence. The types of drugs prescribed, the combination of the drugs, and the duration of treatment all differed from the guidelines.

In South Africa the National Strategic Plan and National TB guidelines outlined the roles that GPs can be involved in order to maximize TB management in the country.

Literature reveals generally poor knowledge regarding the diagnosis and treatment of TB amongst private practitioners. Except for the study from Iran by Shirzadi et al

(2003:799), which revealed that the majority of practitioners used sputum microscopy for diagnosing TB, the rest of the articles reviewed showed a generally poor knowledge of the diagnostic tests for tuberculosis.

CHAPTER 3 Research Methodology

3.1   Introduction

This chapter gives an overview of the methodology, and the details about data collection and analysis. A descriptive research method has been chosen, as its main purpose is to describe the state of affairs as it exists at present. The researcher described what the General Practitioners are doing in terms of the diagnosis, assessment and management of tuberculosis. The researcher has outlined the design, approach and study setting. The study population, sampling method used and sample size has also been outlined. Lastly, the researcher elaborated on the data collection method, data analysis, validity and reliability of the study, as well as ethical considerations.

3.2   Research design

Research design can be seen as a plan or blue print of how a person intends conducting the research (Babbie and Mouton, 2006:74). Babbie and Mouton (2006:74) define research design as the complete strategy of attack on the central research problem; it provides the overall structure for the procedures that the researcher follows, the data that the researcher collects, and the data analysis that the researcher conducts. Simply put, research design is planning.

According to Babbie and Mouton (2006:76), there are different classifications of research designs. The first is the classification principle of distinguishing between the empirical and non-empirical studies. An empirical question addresses a problem in the world, a "real life" problem, while non-empirical questions, on the other hand, are questions about "entities" in the world. Non-empirical questions would include questions about the meaning of scientific concepts, about trends in scholarship, or about competing theories (Babbie and Mouton, 2006:78). The authors further differentiate between primary and secondary empirical data.

Primary data refers to data collected personally by the researcher; as opposed to secondary data which already existed when the research was undertaken (Babbie and Mouton, 2006:78).

In this study the researcher collected all primary data in terms of demographic information, knowledge on diagnosis and management practices on TB.

The data was collected by using empirical questions that address a real life problem (Babbie and Mouton, 2006:78). The study is descriptive, using primary data.

As explained by (Babbie and Mouton 2006:76), data can be classified into two main categories, namely numeric data (numbers, statistics, psychological test scores and physiological measures) and textual data (documents, texts, conversations, and interview transcripts). Both numerical and textual data was used in this study. Numerical data in the study reflect variables such as biographic information, management strategies and diagnosis regimes which relate to the objectives of the study. Textual data was used to explain and conclude important findings of the study.

3.3   Research approach

The study is a descriptive and cross sectional study which involves the quantitative approach. Gerrish and Lacey (2006:163) argue that "quantitative research portrays a stable and predictable world and that the researcher can control external influences". A cross-sectional design was followed, in which data was collected for all variables to determine the knowledge and practices of private medical practitioners regarding the diagnosis and management of TB. (Babbie and Mouton, 2006:80) The study involved assessing how General Practitioners in Gauteng diagnose and manage tuberculosis. The variables studied are the knowledge, diagnoses and management of TB. The knowledge of the medical practitioners was used against the background of the medical practitioners' years in medical

practice, education level, diagnoses practices and management of TB patients. Examining these aspects identified factors contributing to the understanding of the knowledge and practices of private medical practitioners.

3.4   Study setting

The study has been designed and was conducted amongst the General Practitioners in and around Tshwane, Gauteng. The data collection was performed in the General Practitioners' forum during the Continuing Medical Education meetings. Unfortunately, General Practitioners did not attend most of the discussion forums and majority of the doctors who attended were doctors working in the public sector, therefore, to reach a significant number, the questionnaires were sent out to various practices using the laboratory messenger. Poor attendance to the meeting might be due to the fact that the study was done towards the end of the year and majority of the GPs had already reached the target CPD points or end of the year apathy.

3.5   Study population

The Health Professions Council of South Africa was consulted, but unfortunately could not supply exact information about the number of General Practitioners, since their categories include the following classification: independent doctors, internship, community service and specialists. The independent doctors include doctors working in both the public and private sectors. The South African Medical Association was also consulted as this is an association with which most General Practitioners are affiliated, but the challenge is that not all the General Practitioners are affiliated with them. They had about ninety-nine General Practitioners listed in their database as practicing in and around Tshwane (Annexure E).

In this study, the population applied to ninety-nine doctors of the General Practitioners' profession in a specific urban area, namely the municipal area of Gauteng, with the following criteria as study units: practicing as a General

Practitioner in Tshwane, which includes the city centre (Pretoria Central), Pretoria suburbs, Atteridgeville, Mamelodi, Eersterus, Garankuwa, Mabopane, Odi and Soshanguve.

Inclusion criteria included all the General Practitioners practicing in Tshwane, Gauteng despite their years of service, race and nationality. The GPs who were mainly working in private practice and doing sessions at public hospitals as part time basis, like casualty calls, running out-patient clinics but not employed full-time at the public clinics were included. The researcher excluded locum doctors, those employed full-time at the public clinics/hospitals and those not practicing as General Practitioners on a full time basis because locum doctors are based at public hospitals and only do sessions at private clinics to augment their salaries. All the doctors were also registered with the Health Profession Council of South Africa.

3.6 Sampling and sample size

The researcher drew a representative sample of the private medical practitioners with random selection and thereafter generalizing from the data as contested by Parahoo (2006:258).

The sample size was calculated using Epi-info at 95% confidence level, and 45% worst acceptable frequency, and with prevalence of 50% as it is unknown (Epi-info version 3.3, Oct 2004). The calculated sample size is seventy-three plus 15%, as General Practitioners are known for their typical response rate, and also to accommodate spoilt questionnaires. A total of eighty-seven was used as a sample size.

A systematic sampling with a random start method was used as a sampling method. (Babbie and Mouton, 2006:190), whereby the first practice in each area was selected randomly, and from then onwards the messenger delivered the questionnaire to the first three practice rooms, skipping the fourth practice room throughout all the townships and areas covered and total number of 90 doctors

was reached. This method was preferred in order to eliminate selection bias and to ensure a sizeable sample was acquired. The messenger then recorded all the participating practices so as to ensure smooth collection of the completed questionnaire. This method was used to ensure that all the practices had an equal chance of being included in the study. (Welman and Kruger, 2003:58).

3.7   Data collection method

• Data collection method

The period of data collection was eight weeks.

Data collection commenced from the end of October 2008 to December 2008. The entire questionnaires were distributed to the respective GPs by the first week of November 2008. The response rate varied from one day, to up-to five weeks. Some GPs filled in the questionnaire immediately, while others had to be reminded several times before filling them, due to the nature of their consultation hours. The target was an average of 10 questionnaires every week over the 8 week period. Data were then captured electronically for the purpose of further analysis.

• Data collection instrument

For this study a structured and standardized questionnaire was developed (Parahoo 2006:55). The purpose was to obtain information about TB management practices in the private sector. The literature study served as the basis from which the questionnaire was developed to include items on TB management issues.

A structured close ended questionnaire was used as the main method of data collection. The self-administered questionnaire was delivered to the respective General Practitioners' rooms as identified during the random selection, for the General Practitioners to fill in and hand back on completion to the laboratory messenger. The same messenger was used to collect the questionnaire from the different GPs.

The questionnaire utilized in this study contained multi-choice statements to which respondents were requested to react, with several questions under each category.

The questionnaire contained three categories, namely biographic information of the individual doctors, knowledge of tuberculosis management and, lastly, questions on the national tuberculosis guidelines. The questionnaire was intended to discover meaningful patterns of describing how GPs diagnose, investigate, treat and follow up TB patients. Patterns of referral of TB patients were also described. Reference to the National Guidelines on Tuberculosis management was also investigated to determine if General Practitioners do in fact participate according to these guidelines.

- Pre- testing the data collection instrument

The instrument has been pre-tested on 10 subjects (not part of the study sample) who met the inclusion criteria; working as general practitioners in Tshwane district, doing sessions at public hospitals as part time basis, running out-patient clinics but not employed full-time at the public clinics. The purpose of the pre-testing was to "identify problems" with the questionnaire and "ascertain knowledge" in the actual field condition (Singh, 2007:72). With this in mind pre-testing took place to determine the feasibility of the study, to refine the research design, and to examine the validity and reliability of the data collection instrument in order to refine it, if necessary. After testing the instrument, the final data collection instrument was applied in the Gauteng Province to capture the data.

3.8   Data analysis

The study contains quantitative analysis to interpret and describe the collected data. For quantitative analysis, data was coded and entered into Excel spreadsheets and the imported to Epi-info 6 for analysis. Descriptive statistics including Mean, Median, Standard Deviation and Frequency Distribution were used. Frequency in this study is reported in terms of numbers and percentages and will appear in the form of tables and graphs. "Bar charts and pie charts are used in labeling variables per scale according to a nominal, ordinal, interval and ratio level as indicated by Parahoo (2006: 376-377) and Brink (2000:192)".

The responses of the different doctors were classified according to their practices, and the patterns of how General Practitioners in Tshwane diagnose and manage tuberculosis were established.

3.9   Validity and reliability

Validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration (Babbie and Mouton, 2006:122). The questionnaire was designed in such a way that it was not confusing and contained close ended questions. The response of the General Practitioners was recorded accurately without being modified. To ensure validity of the questionnaire, it was pre-tested on ten General Practitioners to determine the clarity of questions, their relevance, completeness, consistency and the time required to complete the questions.   These ten doctors did not form part of the study, but consisted of doctors working in both the private and public sectors.

Consistency in the format of questions was maintained with a structured questionnaire which was based on the literature framework of the study. The researcher also focused on sensitivity, appropriateness and generalization of questions. Provision has also been made by developing the questions based on sensitivity (gender), appropriateness (level of education) and generalization (same practices followed elsewhere).

Reliability is a matter of whether a particular technique, applied repeatedly to the same object, would yield the same result each time (Babbie and Mouton, 2006:119). Reliability, however, does not ensure accuracy any more than precision does. (Babbie and Mouton, 2006:120).

3.10   Ethical consideration

An ethical clearance certificate was obtained from the MREC at the University of Limpopo, MREC/PH/33/2009 (Appendix D).

The researcher introduced herself with an introduction letter to the Private Practitioners as an MPH student at the University of Limpopo MEDUNSA campus, with a Private Practice in Atteridgeville, and also currently working for the Department of Correctional Services. The purpose of the study was briefly explained in the introduction letter. The ethical consideration took into account the personal and revealing nature of the study which required that voluntary, informed consent, using the consent form designed for this study needed to be obtained from the participants. Written informed consent was obtained from the participants prior to administering the questionnaires, the aims and objectives of the study were clearly explained to the participants.

All the questionnaires were used solely for the purpose of the study and to maintained confidentiality the questionnaire were placed inside a sealed envelope and handed over to the messenger who handed them to the researcher upon completion. Another envelope was placed inside with the questionnaire so that the respondent can use it upon completion. Anonymity was ensured throughout the execution of the study as participants were requested not to disclose personal information on the questionnaire. Provisions were made to have participants concerns relating to the study addressed and misconceptions corrected with a follow-up telephonic discussion. Participants were informed that, their participation was voluntary and that they could withdraw from the study at any time if they wish to do so (Appendix C).

The study makes a worthwhile contribution to the management of tuberculosis and does no harm. No life was placed in danger by this study.

3.11 Conclusion

The research methodology was introduced with reference to the quantitative approach, incorporating a descriptive design; the study population, sample, and the proposed use of the data collection instrument were discussed. An outline is also given in terms of the data analysis and pre-testing of the instrument. Findings will be presented in the form of descriptive statistics.

The data analysis and interpretation of results will follow in chapter 4.

CHAPTER 4: Data analysis and interpretation of results

4.1 Introduction

This chapter is devoted to the presentation and analysis of the accumulated data. In the interests of improvement in health services, investigating the diagnosis and management of tuberculosis amongst patients forms an important element in understanding the extent to which health services received by consumers meet their needs and expectations. The initiative of these studies, and their results, can be used to assess the quality of health care provided. This chapter provides the results of findings of the study from the descriptive analysis of the respondents' views of their knowledge regarding TB diagnosis and management. In addition, it seeks to determine if respondents comply with the National Guidelines for tuberculosis management.

The research methodology has been alluded to in the previous chapter, and the results that will be presented are based on that.

Copies of the questionnaire were distributed physically via a messenger and by the researcher to the Private General Practitioners in the areas mentioned in the questionnaire.

4.2 Research results

The reliability and validity of the research findings were safeguarded by ensuring the following: The questionnaire was pre-tested before being distributed for data collection. The questions were clear and divided into different categories, including demography, knowledge about TB diagnosis and management, national TB Guidelines and, lastly, drug resistance.

The study can therefore be generalized and may be regarded as representative.

A total of 90 questionnaires were distributed to General Practitioners in the identified areas of Pretoria. A response of 59/90 (66%) was obtained, which compares favorably with the experience of the researchers Hussain, H., Mirza, Z., Quresh, F.A., & Hafeez, A. (2005:55), during which a total of 53/77 (69%) practitioners responded to the questionnaires in the study.

Data analysis was performed by first inserting all the data into an Excel spread sheet; specifically, the graphs and pie charts were drawn to show frequencies, tendencies and interpretation, and analysis of the data was undertaken.

4.3 Section A: Socio-Demographic information

Section A of the questionnaire was formulated to elicit information on the background, location and socio-demographics of the General Practitioners.

4.3.1 The respondents' location

The questionnaire was distributed at various private practices in Tshwane. The areas can be divided into Pretoria West, which includes Atteridgeville, Danville and Laudium; Pretoria East, including Mamelodi and Eersterus, Pretoria Central including the City Centre and lastly Pretoria North which includes Garankuwa, Mabopane and Soshanguve.
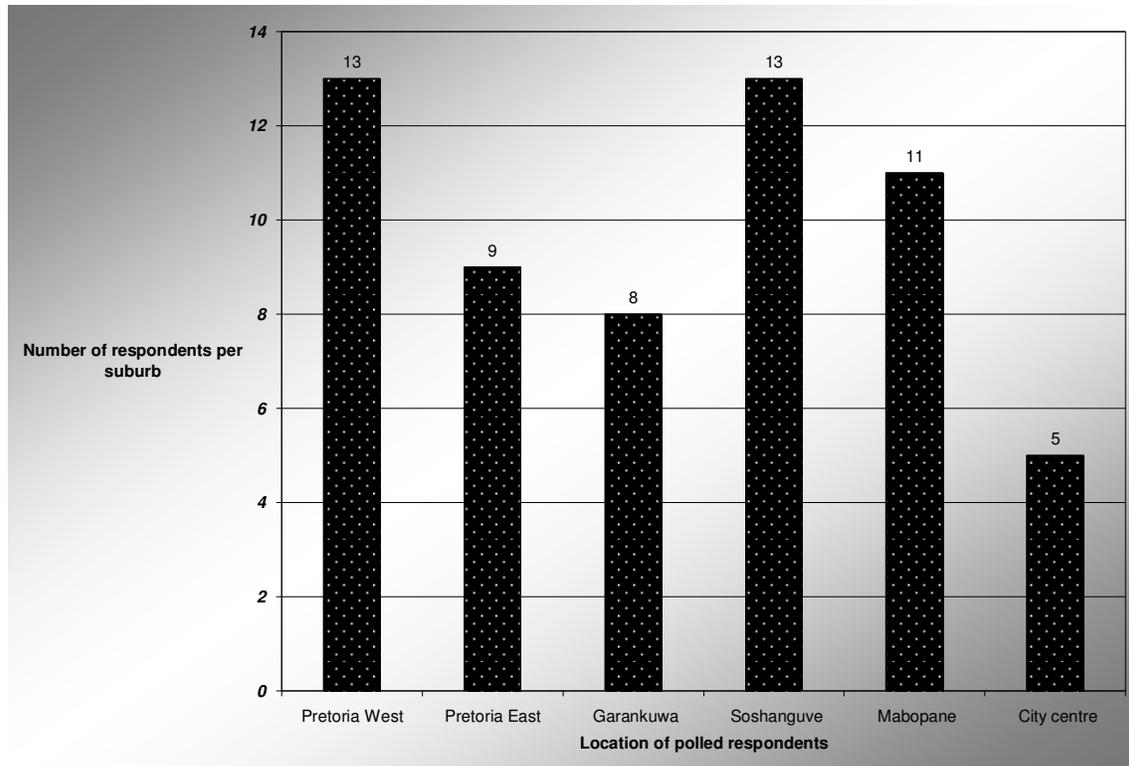
Figure 4.1: Respondents' Location (n=59).

4.3.2 The Respondents' duration in medical private practice

More than half 31 (53%) of the respondents were in private practice for 15 years and more. Only 6 (10%) were in private practice between 11 and 15 years. Just 13 (22%) were in private practice between 6 and 10 years. The remainder, about 9 (15%), were in private practice for less than five years.

Shimeles et al; (2006:1173) found out that the years of medical practice ranged from 2 to 40 years. 40% of the respondents had been practicing for 11-20 years and 8.4% for more than 21 years, while the rest 48.6% had practiced for a decade. (Shimeles et al; 2006:1173)
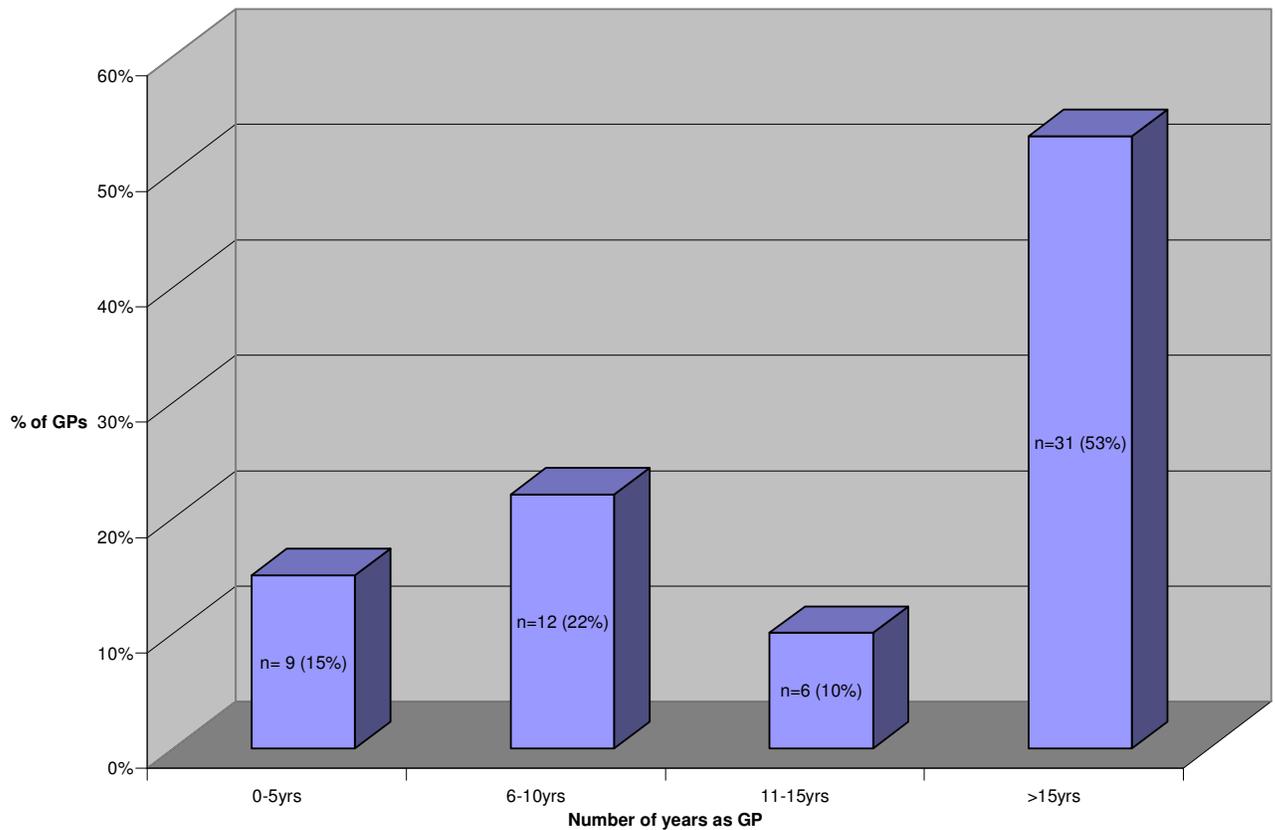
Figure 4.2: Respondents duration in medical practices n=59.

4.3.3 Gender distribution of respondents

Of the General Practitioners who responded (59: 66%), 44 (75%) are male and 15 (25%) are female. This finding is supported by a study done in the Phillipines by Portero and Rubio, (2003:332) where they found dominance of the males within the medical field. Their findings were males: females, 72%: 27%.
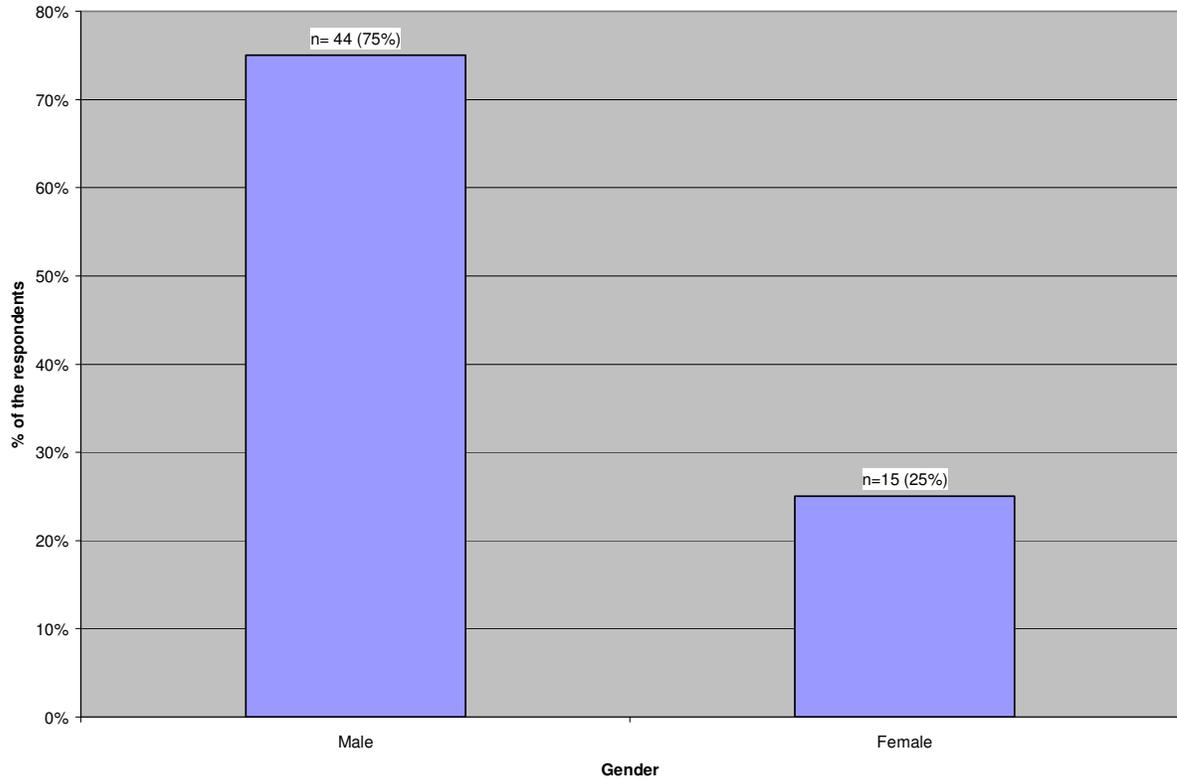
Figure 4.3: Gender of respondents (n=59)

The findings were slightly different but comparable to a study by Hussain et al. (2005:45) where the majority of the doctors were males (93%). General Practitioners constituted 85%, whereas 4% were specialists and 9% did not mention their status (Hussain et al., 2005:45).

4.3.4 Additional qualification obtained by respondents

All of the General Practitioners hold a basic medical degree. A third of the General Practitioners who responded, specifically 19 (33%), do not have any further qualification other than their basic medical degree. However, 25 (42%) have another degree, while 15 (25%) have an additional diploma.

Ingram and Albright (2007:238) emphasize that "training forms the basis of knowledge that will ensure employees develop skills for their profession." It appears that all the respondents have received formal training applicable to the profession. It was therefore deducted that the majority of respondents (40; 85%)

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are inexperienced in National TB Guideline activities and are not acquainted with the practices.
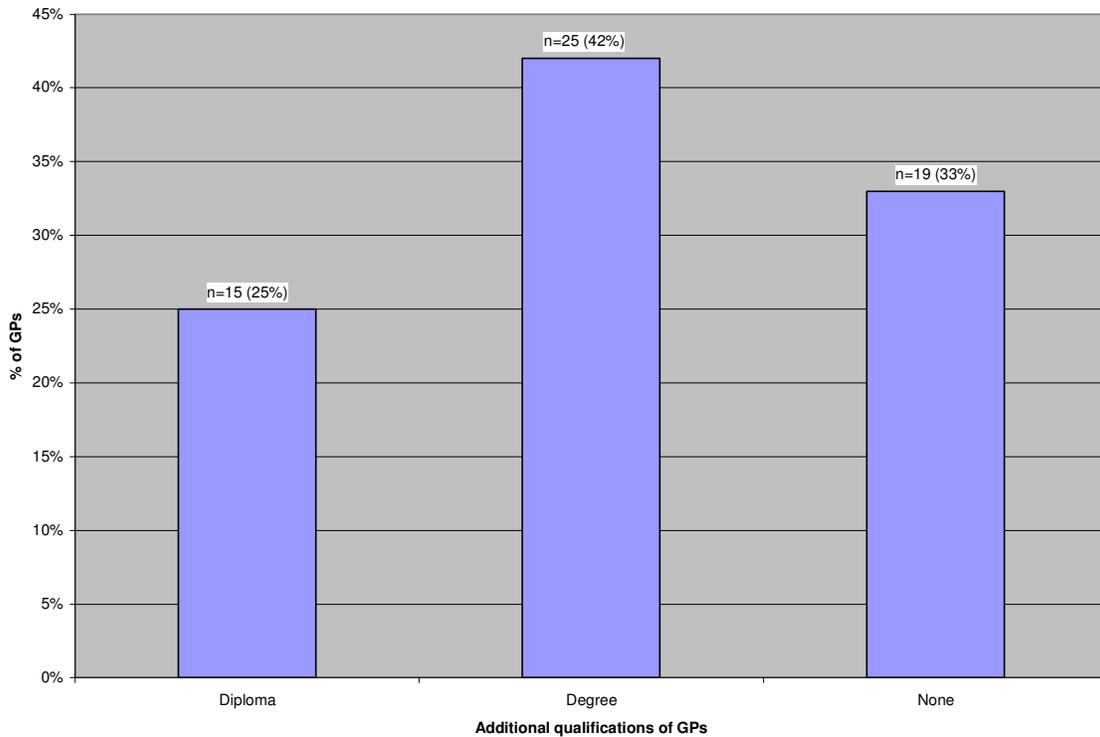
Figure 4.4: Additional qualifications of respondents (n=59)

The researcher did not enquire if the additional qualifications were medically related. The fact that these may not be medically related might partly help to explain why there is little difference in TB management amongst the practitioners.

4.3.5 Session appointments of respondents at public clinic or hospital

More than half, 34 (58%) of the General Practitioners, were also working in public health care facilities, doing sessions, while the remaining 25 (42%) never worked in public health care facilities. This was in contrast to what Hussain et al. (2005:45) found, which is that only 7.5% of the practitioners in their study were also working in the government sector, that is, in addition to practicing privately.

Portero and Rubio in (2003:332) found out that of the polled private practitioners 34.9% were also working both in the private and public sector, while Hussain et al,

(2005:55) only 7.5% were working in both sectors. Maamari, (2005:82), found out that 43.2% of the respondents were in both the private and public sector.
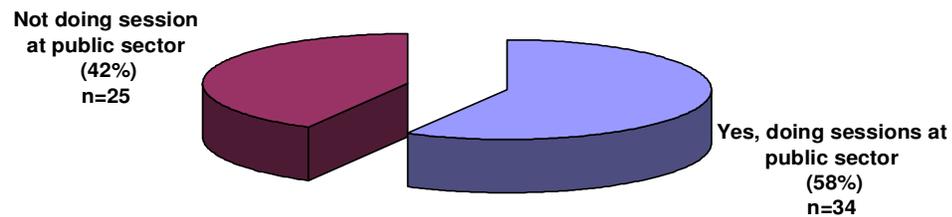
Figure 4.5: Sessions worked by General Practitioners in Public Hospitals (n=59)

4.4 Section B: Experiences of private medical practitioners regarding their knowledge on TB diagnosis and management

In this section, the researcher aimed to gain information about the disease patterns in the different private practices; ascertain the knowledge level about diagnosis and management of tuberculosis among the different doctors; and discover whether the polled General Practitioners were familiar with and followed the National TB Guidelines.

4.4.1 Disease categories identified by respondents

A significant number of the General Practitioners — 25 (42%) — were seeing all the disease categories, including acute illnesses, chronic illnesses, communicable diseases such as tuberculosis, and HIV and AIDS patients. The disease pattern is similar to the primary health care patterns as described in the Standardised Essential Drugs list of primary health in South Africa, 2004.

The table graph below shows the pattern of disease profile seen by the respondents at their different practices.
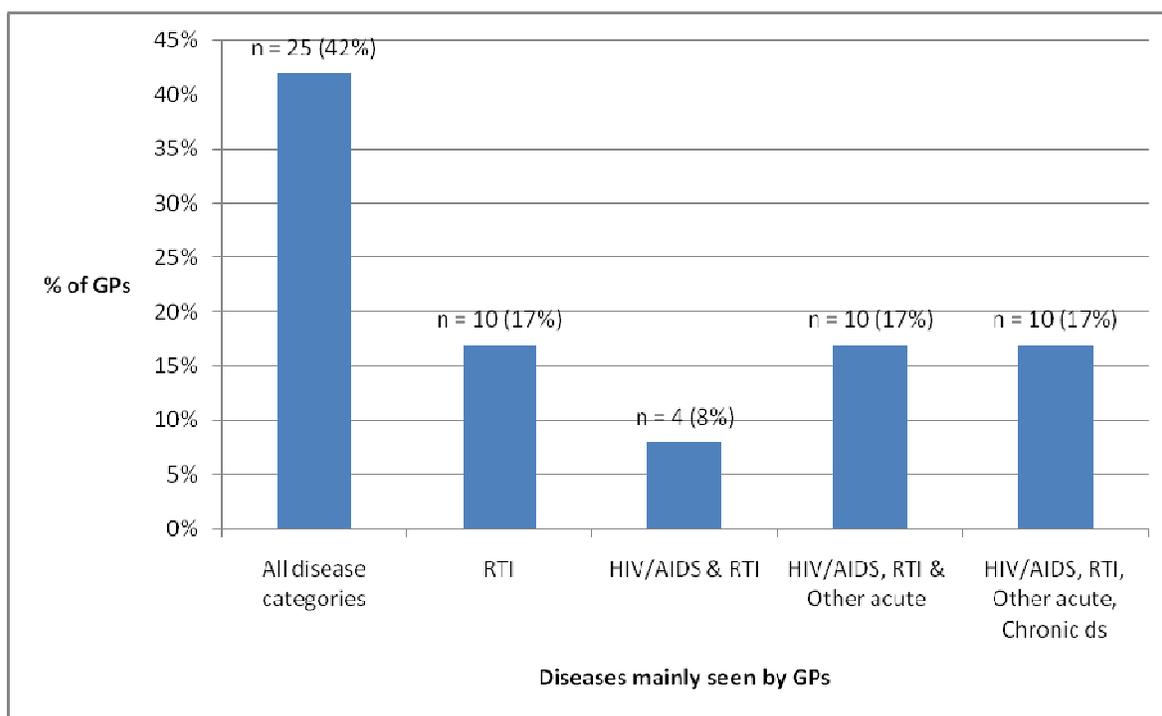
Figure 4.6: Disease categories identified by respondents (n=59)

4.4.2 New TB cases per month by respondents

Out of the respondents seeing communicable diseases, 29 (50%) were seeing between1-5 TB patients per month. Just under a quarter of the respondents that is, 10 (17%) did not keep records of the TB patients diagnosed monthly. This was against the National TB Guidelines, which state that TB is a notifiable disease and thus proper TB records in the form of registers should be kept by all facilities diagnosing or treating TB patients.

The findings were almost similar to that of Shirzadi et al, (2003:799) in Pakistan where 78.2% of the polled doctors kept records of TB patients treated.

According to the study by Greaves et al, (2007:111) up to 40% of the polled doctors did not keep records of TB patients seen, only 44.4% confirmed that they kept own records of TB patients and 7% did not answer the question.

Hussain et al. (2005:57) revealed that for 81.5% of the General Practitioners at least two to five TB cases were diagnosed in their clinic each week, while some doctors (2.2%) reported diagnosing more than 10 cases a week. Almost the entire respondents claimed that, after diagnosing TB, they referred the patient to a public TB Centre, but it was not possible to ascertain this at the time of survey. According to their NTP, General Practitioners are not allowed to treat TB cases; their role is limited to diagnosis and mandatory referral. (Hussain et al, 2005:57)

Shimeles et al; (2006:1175) revealed that 80% of the General Practitioners did not keep records, while their NTCP says all the TB patients should be recorded and notified. Most private institutions do not keep records of the number and type of TB cases they manage, creating huge gaps in understanding the true burden of TB in Addis Ababa.

While Portero and Rubio, (2005:332) found that only 20.4% of the private practitioners kept a standardized clinical history of their TB patients with valuable data for epidemiological statistics.

Another study in Pakistan by Khan et al, (2003:772) only 22.5% of the polled physicians kept record of their patients, which means that the tracing treatment defaulters would be close to impossible. The study further alluded to the utmost importance of record keeping for the control of TB. (Khan et al, 2003:772)

The study revealed that almost all the General Practitioners know the first line of TB treatment, which includes Rifampicin, Isoniazid, Pyrazinamide and Ethambutol. The finding is in contrast with the findings by Maamari et al; (2005:82) where only 69.5% stated the correct drug regimen for first line treatment, 9.1% stated the incorrect regimen and this was significantly in practitioners working in private sector alone.
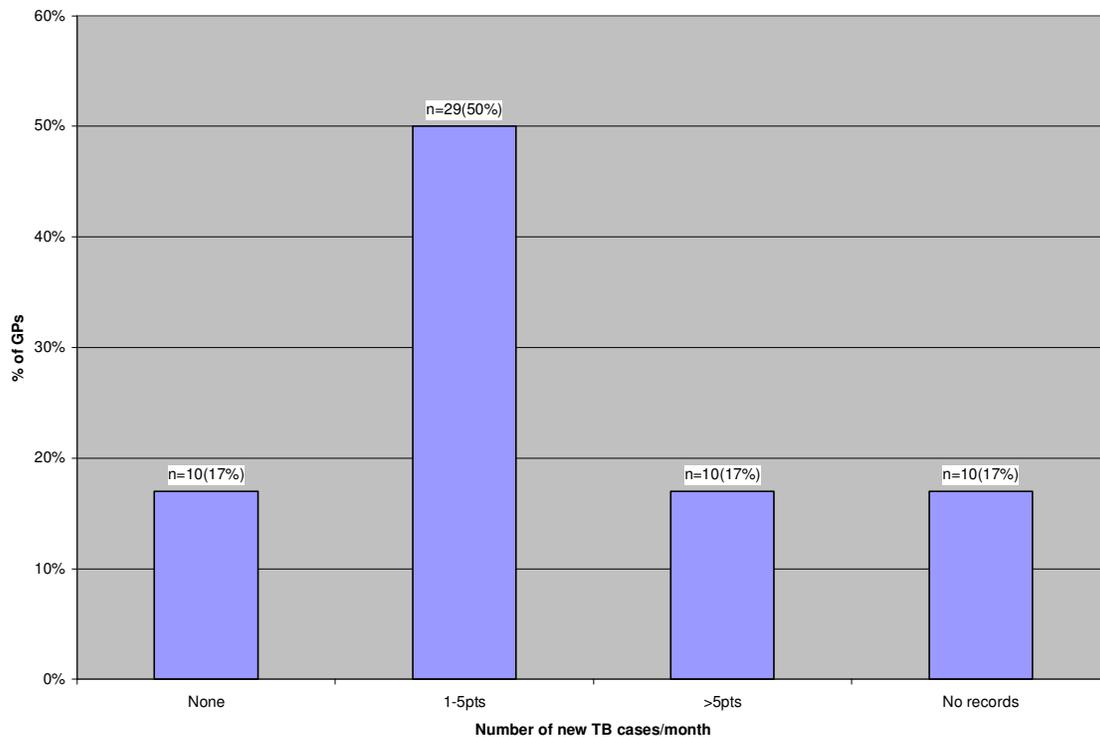
Figure 4.7: Evidence of New TB Cases seen per Month (n=59).

4.4.3 Respondents' diagnoses of TB

More than two thirds of the doctors 44 (75%), relied on sputum alone for the diagnosis of pulmonary tuberculosis. A small number of General Practitioners — five (8%) relied on x-rays alone and therefore never took sputum for TB investigations, while another five (9%) used both sputum and x-rays for the diagnosis of TB.

The study by Greaves et al, (2007:111) also showed that 80% of the polled practitioners included sputum microscopy as a first line test for the diagnosis of TB.

The findings were also similar to the study by Maamari, (2005:83) where 73.8% stated that they would recommend a sputum smear examination to almost every patient suspected to have tuberculosis; 90.7% would recommend three specimens when requesting a sputum examination. This is what the NTCP recommend for TB patients.

Another supporting study was by Shirzadi et al, (2003:799) where 87.3% physicians indicated that sputum smear microscopy was the principal diagnostic method.

Khan et al, (2003:771) found that 58.3% considered sputum microscopy the single most important test for diagnosing TB, chest X-ray was the second with 20.0%.

The above findings were different from Portero and Rubio; (2005:332) whereby they found that TB diagnosis was mainly based on X-ray findings (87.9%); to a lesser extent, on symptoms given by the patient (6.1%) or physical examination (3.1%). It was disappointing that only 2.9% of the private practitioners manned sputum microscopy examination as a key tool for TB diagnosis in their patients.

The National TB Guidelines require that all patients should have sputum taken for microscopic analysis. Therefore, the General Practitioners require training, as they did not practice what the Guidelines recommend.
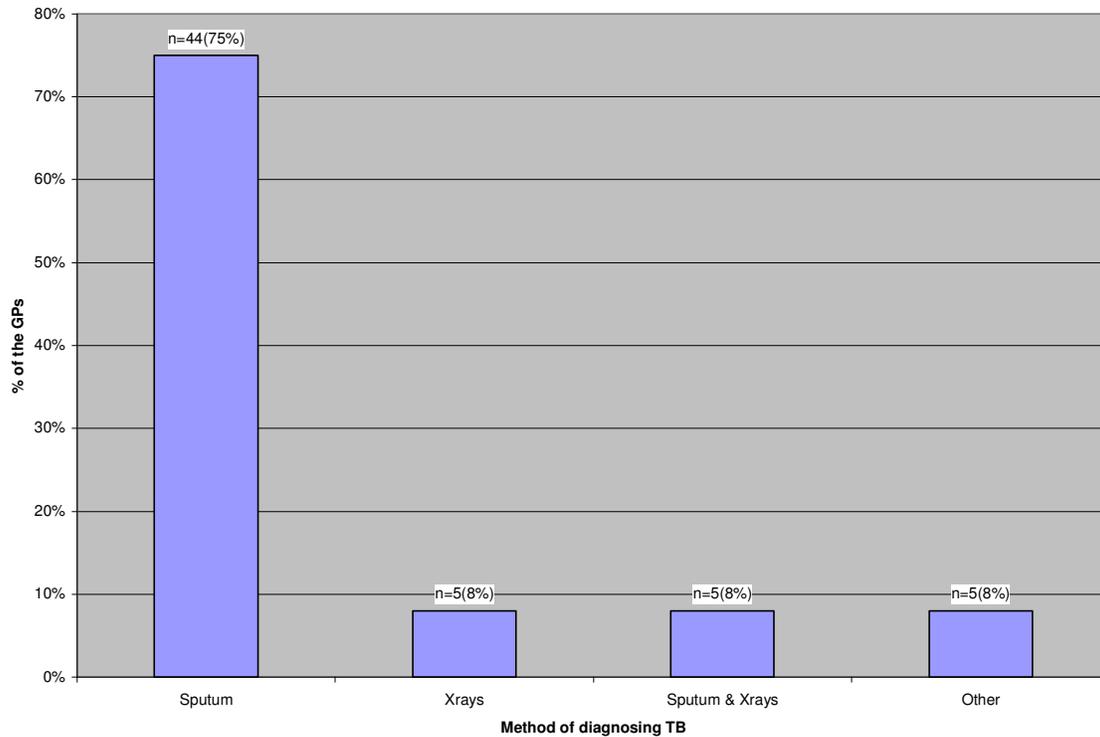
Figure 4.8: Respondents' method to Diagnose Pulmonary Tuberculosis.(n=59)

4.4.4 Methods preferred by respondents to diagnose pulmonary tuberculosis

A third of the respondents, specifically nineteen (33%), said they preferred to use a sputum test, which is in line with the recommendation by the National TB Guidelines, while ten (17%) said they preferred a sputum test because sputum tests were effective and immediately available and did not state the National TB Guidelines recommendation. A further 10 (17%) preferred the use of X-rays because X-rays were seen as accurate, whilst this is not necessarily true, as some Chest X-rays would not show tuberculosis changes, especially in patients who are immuno-suppresed (SA National TB guidelines, 2008:24). A small number, five (8%), preferred the investigation because they were inexpensive. The remaining fifteen General Practitioners (25%) preferred the investigation due to a combination of its being effective and immediately available, accurate and inexpensive.

The TBCTA, (2006:6) guidelines recommend that all persons with chest radiographic findings suggestive of tuberculosis should have specimens submitted for microbiological examination.

In a study by Maamari, (2005:83) 62.2% of the respondents reported asking for chest radiography in cases of suspected TB. The reasons for recommending chest X-ray were confirmation of diagnosis 63%, easier diagnosis of TB 4% and differential diagnosis 1.6%. (Maamari, 2005:83)

4.4.5 Number of TB sputum specimens taken by respondents'

Only 25 (42%) of the respondents who took sputum took three sputum samples as recommended by the National TB Guidelines. Another 25 (42%) took only two sputum samples. Of those who did take samples, none reported taking just one sputum sample. The remaining nine General Practitioners (15%) reportedly never take sputum specimens for TB diagnoses.

The Tuberculosis Coalition for Technical Assistance (TBCTA) (2006:6) recommend that all patients (adults, adolescents and children who are capable of producing sputum) suspected of having pulmonary tuberculosis should have at least two, and preferably three, sputum specimens obtained for microscopic examination. This is especially significant for HIV positive patients, as up to 65% have smear negative sputum, and thus culture is essential in diagnosing these patients.

According to a study from the Middle East by Shirzadi et al. (2003:799), sputum smear microscopy is the principal diagnostic method in 72.97% of the respondents. Another study by Maamari et al. (2005:82-83) similarly showed that 73.8% of private practitioners stated that they would recommend sputum smear examination to every patient suspected of TB. Greaves et al. (2007:111) found that 80% of the private practitioners used sputum microscopy as a first line test.

It is disconcerting to note that only 25 (42%) of the respondents in the study used sputum samples diagnostically. These findings are significantly different from the findings by Yadav et al. (2005:259), who discovered that only 57.14% of General Practitioners were using sputum examination as a tool for diagnosis of TB and only 21.43% were using three sputum check-ups for such diagnosis. (Yadav et al. 2005:259),

Sputum examination is the mainstay of pulmonary TB diagnosis in South Africa (TBCTA, 2006:18). It is therefore essential to hold compulsory TB sessions, to be attended by the General Practitioners, so that they can know what the National TB Guidelines recommend.
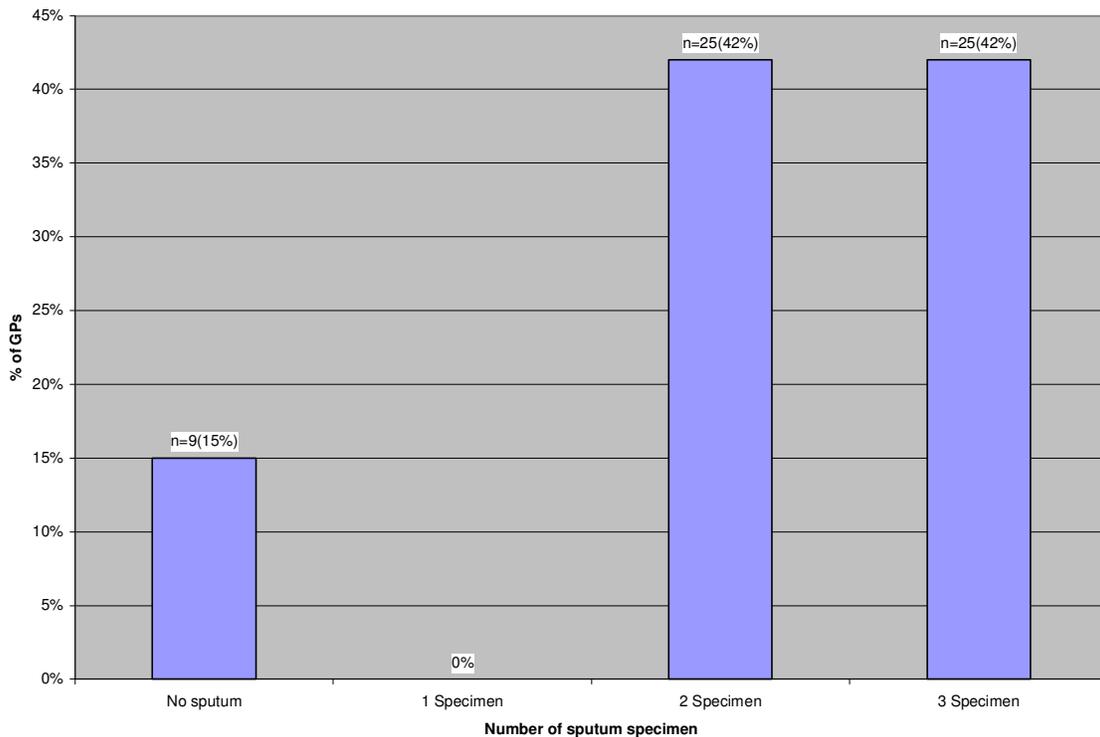
Figure 4.9: Number of Sputum Samples Collected to Diagnose TB by respondents (n=59)

The study revealed that 25 (42%) were using three sputum samples, none of the respondents used only one sputum sample and 25 (42%) were using two sputum samples. Only nine (15%) were not using sputum examination at all as a tool for

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the diagnosis of TB. The study also found that the X-ray of chest alone for the diagnosis of TB was used by only five (8%). The study by Yadav et al. (2005:66) revealed that there was overemphasis on chest X-rays for the diagnosis of TB. This finding was in contrast with what the current study has revealed, which is that only 16% of the General Practitioners subjected their patients to chest X-rays.

4.4.6 Respondents' screening of TB patients for HIV/AIDS

A significant number of General Practitioners, specifically 25 (42%), always screen TB patients for HIV, while an equal number, namely 25 (42%), never screen patients for HIV. The remaining nine (15%) of the polled General Practitioners only screen patients sometimes.

More than half of the General Practitioners, namely 34 (58%), screen HIV positive patients for TB, while 25 (42%) do not screen these patients. The National TB Guidelines recommend that the patient diagnosed with TB should be offered voluntary counselling and testing for HIV, and patients who are HIV positive should always be screened for TB.

The TBCTA (2006:29) recommends, as one of the standards in TB treatment in areas with a high prevalence of HIV infection within the general population (like South Africa) and where tuberculosis and HIV infection are likely to co-exist, that HIV counselling and testing is indicated for all tuberculosis patients as part of their routine management. In areas with lower prevalence rates of HIV, HIV counselling and testing is indicated for tuberculosis patients with symptoms and/or signs of HIV-related conditions, and in tuberculosis patients who have a history suggestive of a high risk of HIV exposure.
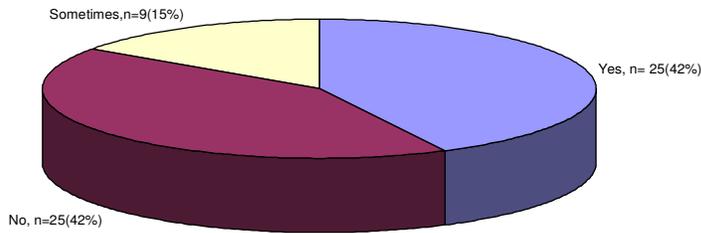
Figure 4.10: Respondents' screening of all TB Patients for HIV (n=59)

4.4.7 Indication of respondents' screening of HIV positive patients for TB

More than half of the General Practitioners, or 34 (58%), screen HIV positive patients for TB, while 25 (42%) do not screen these patients.
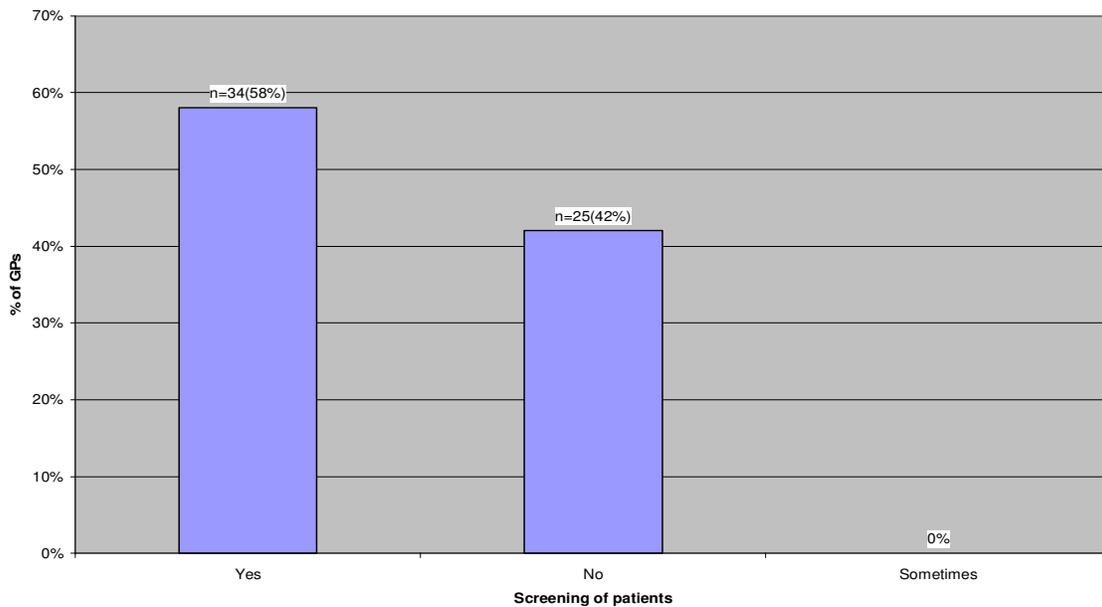
Figure 4.11: Screening of HIV Patients for TB by respondents (n=59)

This is in contrast to the collaborative approach to HIV/TB, as it is required by the National Guidelines that all patients with TB should be offered voluntary counselling and testing for HIV, and all patients with HIV should be screened for TB. (South African National TB guidelines 2008:74)

4.4.8 How often do respondents examine TB patients

More than two thirds, 44 (75%), of the polled General Practitioners never treat TB patients; they refer the patients to other facilities. This is recommended by the National TB Guidelines. All the diagnosed TB patients should be referred to public state facilities for treatment, since the treatment there is cheaper and the staff members are trained to treat such patients. TB treatment is costly and it would be too expensive for an average South African citizen to afford treatment without interruptions, thus causing resistant strains to emerge. A small proportion, namely five (8%), who treat TB patients, see them weekly, and ten (17%) see them monthly.

The National TB guidelines 2008, recommend that TB patients should be seen at diagnosis and then monthly for follow-up. Consequently, the majority of General Practitioners were doing the right thing by referring TB patients rather than treating them. Only a quarter of them treated TB patients, and had follow-up schedules which were different to those recommended in the National TB Guidelines.

There is not much literature on the follow-up visits and frequency of seeing TB patients.
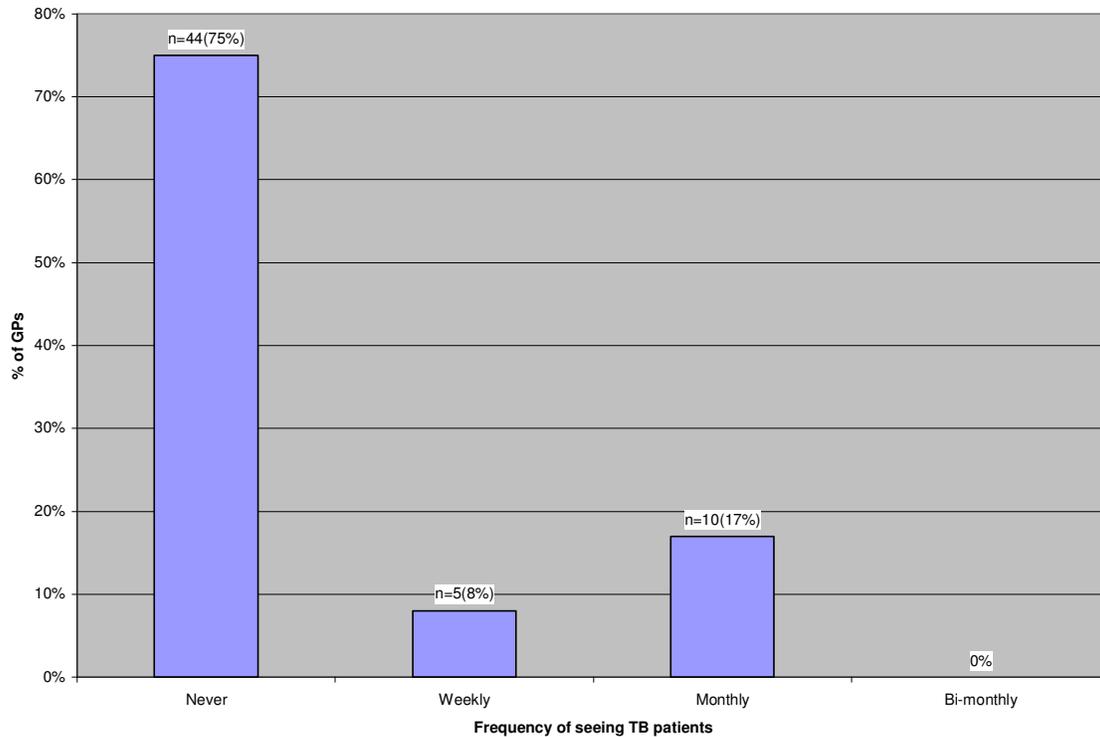
Figure 4.12: Frequency of seeing TB patients by respondents (n=59)

4.4.9 TB treatment regimen applied by respondents

Out of the polled General Practitioners who treat TB patients, 10 out of 15 (66%) knew that previous history of TB will influence the regimen, while another third will always put patients on treatment despite the previous history of TB.

All patients (including those with HIV infection) who have not been treated previously should receive an internationally accepted first-line treatment regimen, using drugs of known bioavailability. The initial phase should consist of two months of isoniazid, rifampicin, pyrazinamide and ethambutol. The preferred continuation phase consists of isoniazid and rifampicin given for four months. Isoniazid and ethambutol given for six months form an alternative continuation phase regimen that may be used when adherence cannot be assessed, but it is associated with a higher rate of failure and relapse, especially in patients with HIV infection. (TBCTA, 2006:29)

The doses of antituberculosis drugs used should conform to international recommendations. Fixed-dose combinations of two (isoniazid and rifampicin), three (isoniazid, rifampicin, and pyrazinamide) and four (isoniazid, rifampicin, pyrazinamide, and ethambutol) drugs are highly recommended, especially when medication ingestion is not observed (TBCTA, 2006:29)
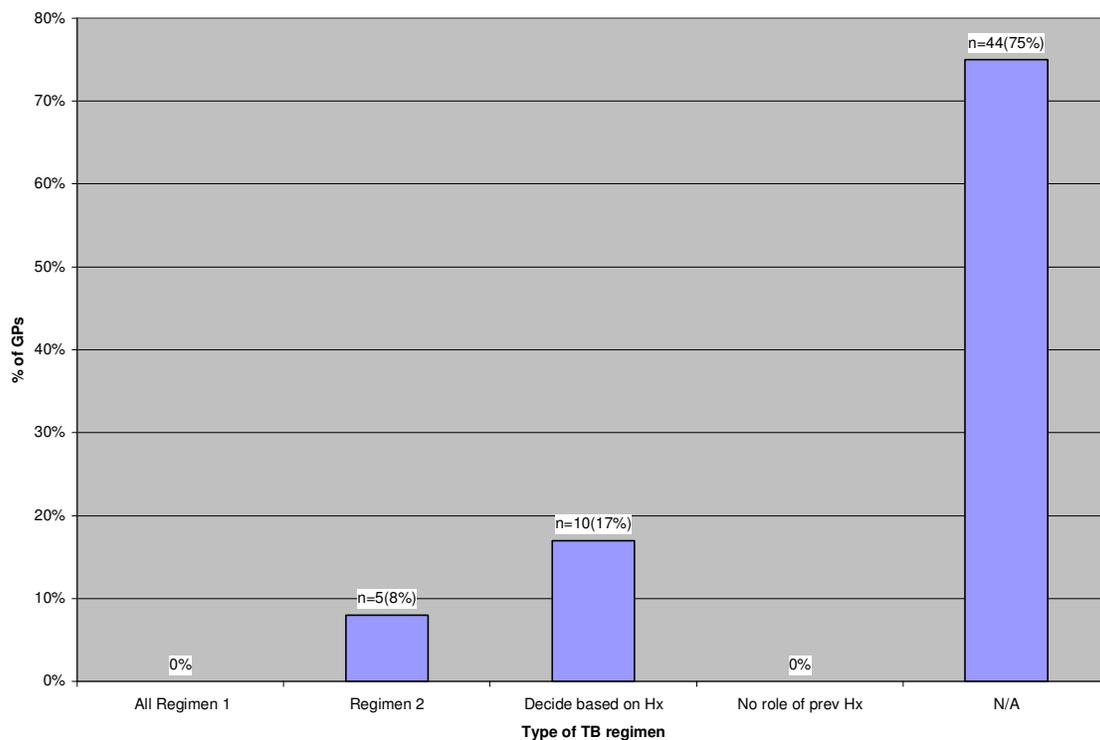
Figure 4.13: Types of Regimen applied by respondents (n=59)

4.4.10 Respondents first line of TB treatment

All the 59 General Practitioners knew the first line treatment of TB. The doses of antituberculosis drugs used should conform to international recommendations. Fixed-dose combinations of two (isoniazid and rifampicin), three (isoniazid, rifampicin, and pyrazinamide), and four (isoniazid, rifampicin, pyrazinamide, and ethambutol) drugs are highly recommended, especially when medication ingestion is not observed (TBCTA, 2006:29).

4.4.11 Referral practices of respondents

Only 34 (58%) of the General Practitioners referred the patients correctly to the public clinics for TB treatment, while 19 (34%) would refer to both clinic and public hospital (figure14.4). Referring to hospitals usually delays the initiation of treatment, as TB is currently treated in primary health care facilities in Gauteng Province, therefore the patient would be turned back to the local clinic for treatment.

Only five (8%) would refer to private physicians or private hospitals.

This finding is the opposite of the findings by Greaves et al. (2007:110), conducted in Kerala India, where 67% of patients remained in the private sector and were never referred to free public health services. That study showed that the General Practitioners in Kerala, India preferred to refer patients to the private clinics. Greaves et al. (2007:111) also found out that 35.5% of the doctors referred all of their patients to the public sector, 33.3% referred some of them and 31.1% referred none of them. Of the 15 doctors who referred only some patients, nine (60%) claimed that they sent the poor patients to government health facilities and treated the wealthy patients themselves within the private sector. (Greaves et al; 2007:111)

A study by Khan et al, (2003:773) found that few doctors (19.2%) referred patients to a government TB facility for treatment, while another study done in Delhi, India it was reported 38%.

Portero and Rubio, (2005:332) found that 87.8% of the private practitioners treated their TB patients throughout the course of the disease; referrals to colleagues or the governmental sector were rare, only around 12.3%.
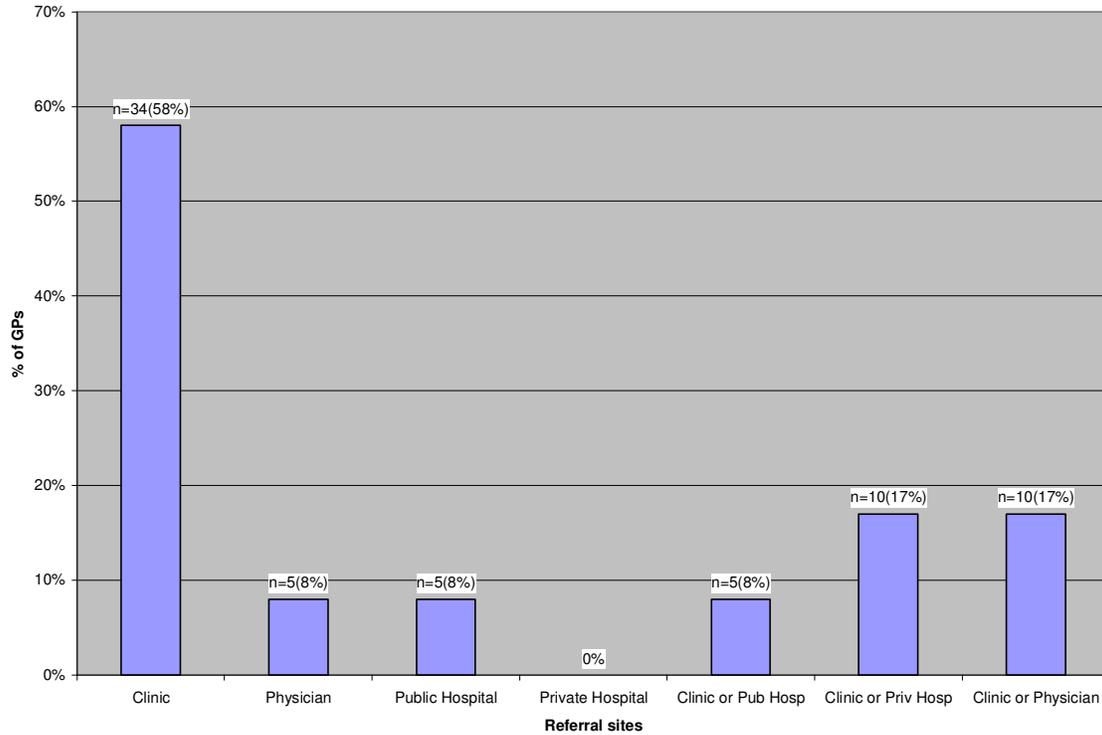
Figure 4.14: Referral practices of respondents (n=59)

4.4.12 Feedback practices of respondents'

None of the polled General Practitioners always received feedback from the referral site. Feedback from the referral sites was sometimes received by only one third, or 19 (33%) of the polled General Practitioners. Two thirds (40) never receive feedback from the referral sites. The researcher could not find literature to compare with other studies the feedback from the referral sites.
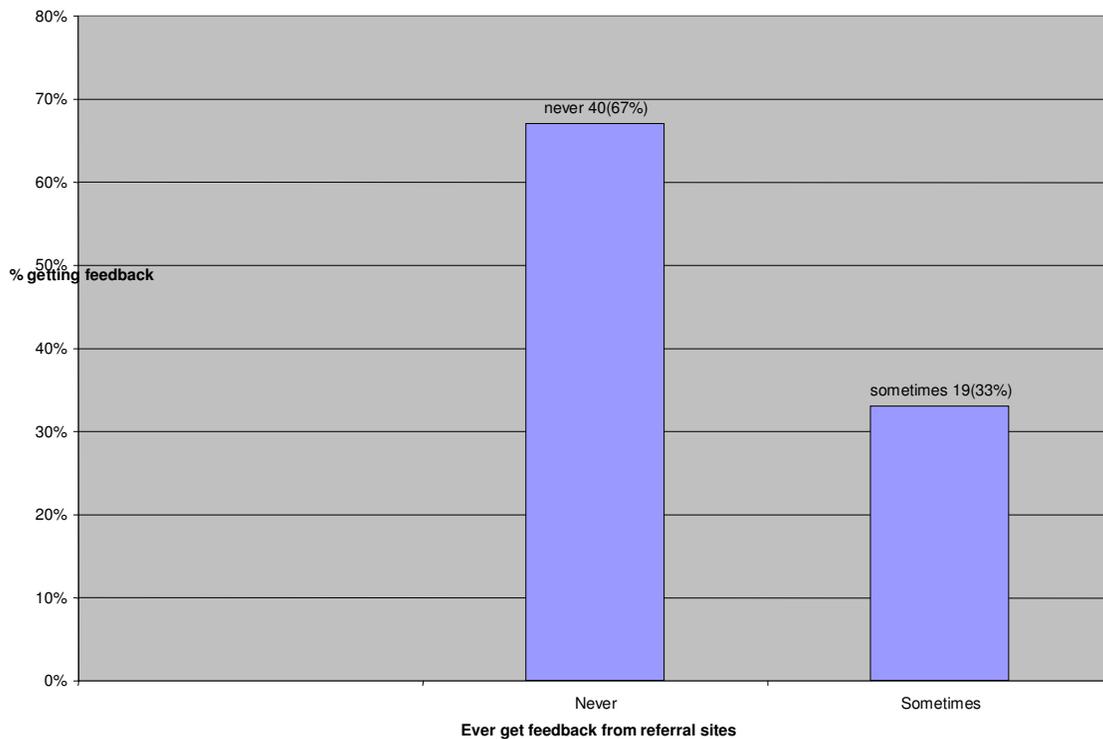
Figure 4.15: Feedback practices of respondents (n=59)

4.5 Section C: Compliance of private medical practitioners with the National TB Guidelines

4.5.1 Respondents' awareness of the National TB Guidelines

A majority of 44 (75%) of the respondents are aware of the National TB Guidelines and 15 (25%) are not aware of the National TB Guidelines. Only 22 (50%) of the General Practitioners who are aware of the Guidelines have a copy of them.

The findings of the awareness of TB guidelines were significantly different from those of Maamari, (2005:81); where only 34.9% of the physicians were aware of the NTCP manual for TB control.

Portero and Rubio (2005:333) found that less than quarter (24.2%) of the private practitioners was well acquainted with the Filipino NTP guidelines.

There is therefore a need for extensive education amongst General Practitioners regarding TB diagnosis and management as outlined by the National TB guidelines. Awareness of these guidelines should be achieved by public-private partnership and feedback from the referral site.
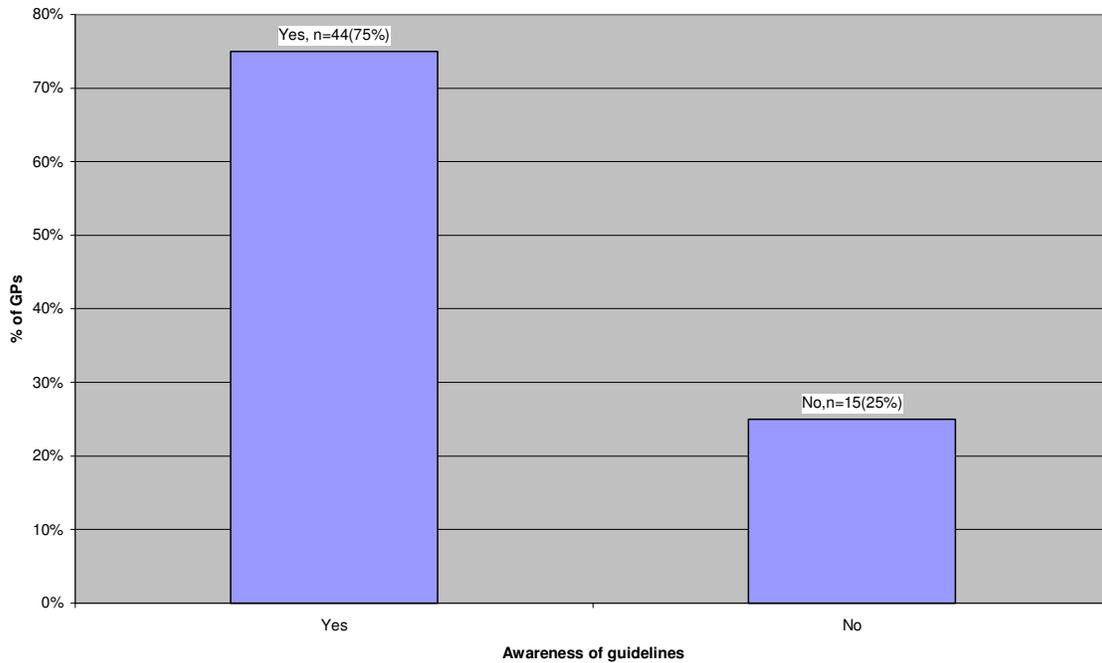
Figure 4.16: Respondents' awareness of TB Guidelines (n=59)

4.5.2 Respondents' application of National TB Guidelines

Out of the 22 (50%) who have copies of the Guidelines, only half have ever used or referred to them. This means that majority of the respondents have copies of the guidelines but they do not use them.
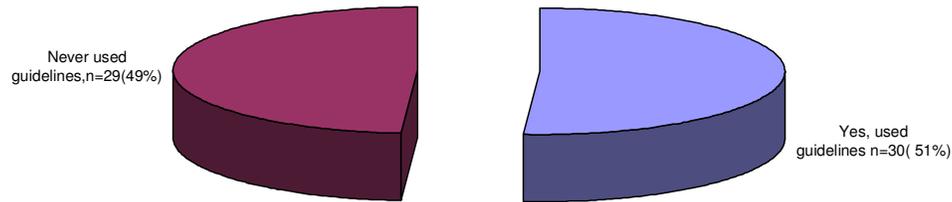
Figure 4.17: Respondents' application of TB Guidelines (n=59)

4.5.3 Copy of the Guidelines

Thirteen, or just over half (51%) of the General Practitioners who have copies ever used these Guidelines.

Only 22 (50%) of the General Practitioners who are aware of the guidelines have a copy of the guidelines. Three quarters of the General Practitioners do not possess a copy of the national TB guidelines, which is quite significant, as having a copy of the Guidelines available at all primary health care sites would provide ready information for the General Practitioners to refer to and thus manage TB patients more effectively.

Just 13 (22%) of the respondents have ever used the National TB guidelines.
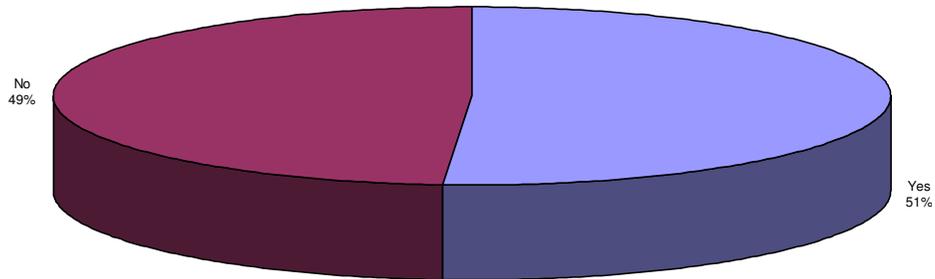
Figure 4.18: Copy of Guidelines (n=59)

4.5.4 Respondents' participation in directly observed treatment supporter (DOTS)

Just five out of the 59 (8%) respondents ever participated in directly observed treatment (DOTS). The rest of the respondents never participated in Directly Observed Treatment. This is unfortunate as the General Practitioners are to be used in the DOTS strategy for effective management of TB.
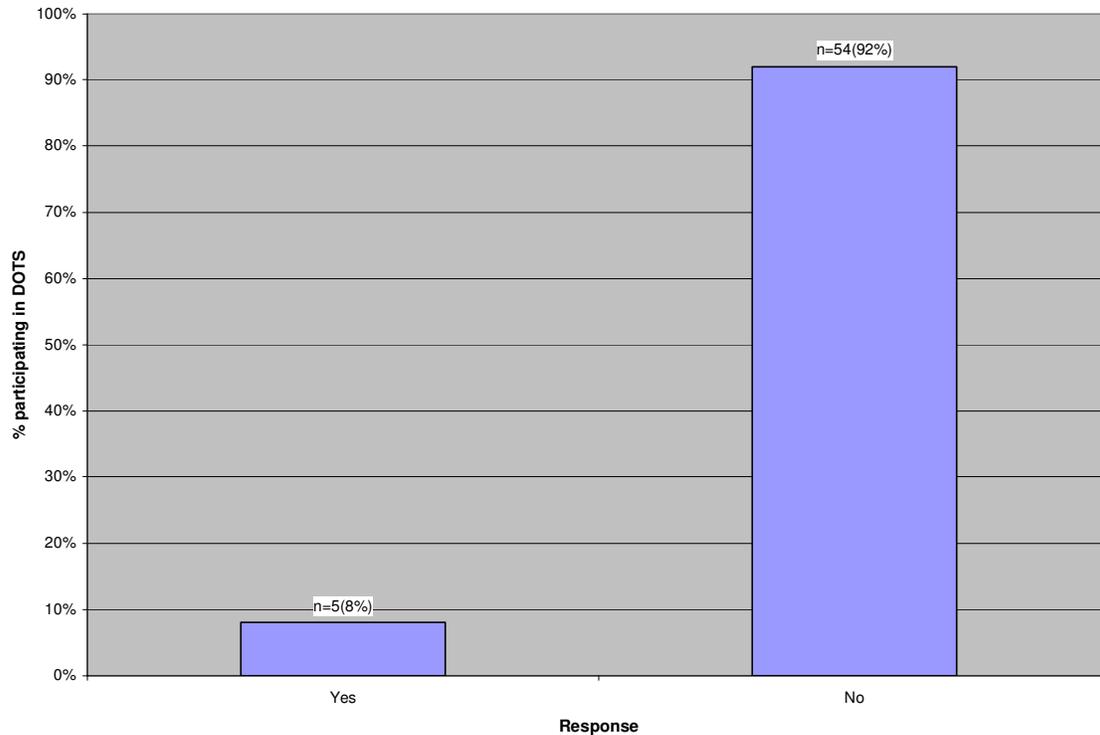
Figure 4.19: Respondents' participation in DOTS (n=59)

4.5.5 Respondents' investigation of TB contacts

Investigation of the TB contacts varied, as 9 (17%) investigated TB contacts all the time, while 25 (42%) investigated contacts sometimes, and the remaining 25 (42%) never investigated contacts. The National TB Guidelines recommend that all TB contacts below five years of age should be investigated for TB. A significant percentage, namely 25 (42%), do not investigate TB contacts, which is a problem as TB poses a burden and increased mortality in South Africa. The newly revised National TB Guidelines (2008:74-78) recommends intense TB case findings by means of investigating all TB contacts with high risk, such as those who are HIV infected and children below five years.

Notably, the General Practitioners polled were able to identify TB contacts successfully. Only 17% (10), however, correctly said that only children under five years should receive prophylaxis. The revised TB Guidelines 2008 recommend Isoniazid Prophylaxis Therapy for all the contacts at risk.

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The findings by Portero and Rubio, 2005:334 found that enquiring about patient's close contacts to search for new cases was rare, only 8.6% enquired about TB contacts.
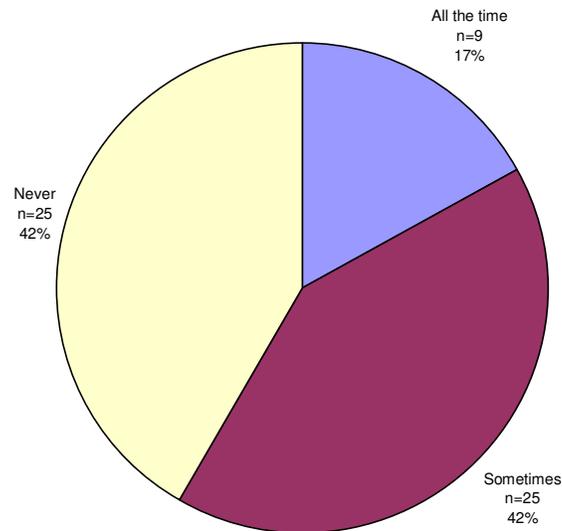
Figure 4.20:Respondents' investigation of TB contacts (n=59)

4.5.6 Respondents indication of contact with TB infected persons

A majority of 54 (92%) correctly identified TB contacts as everybody living in the same household as a person infected by tuberculosis. Only five (8%) did not identify the TB contacts correctly; they identified TB contacts as children living in the same household as a person infected with TB.
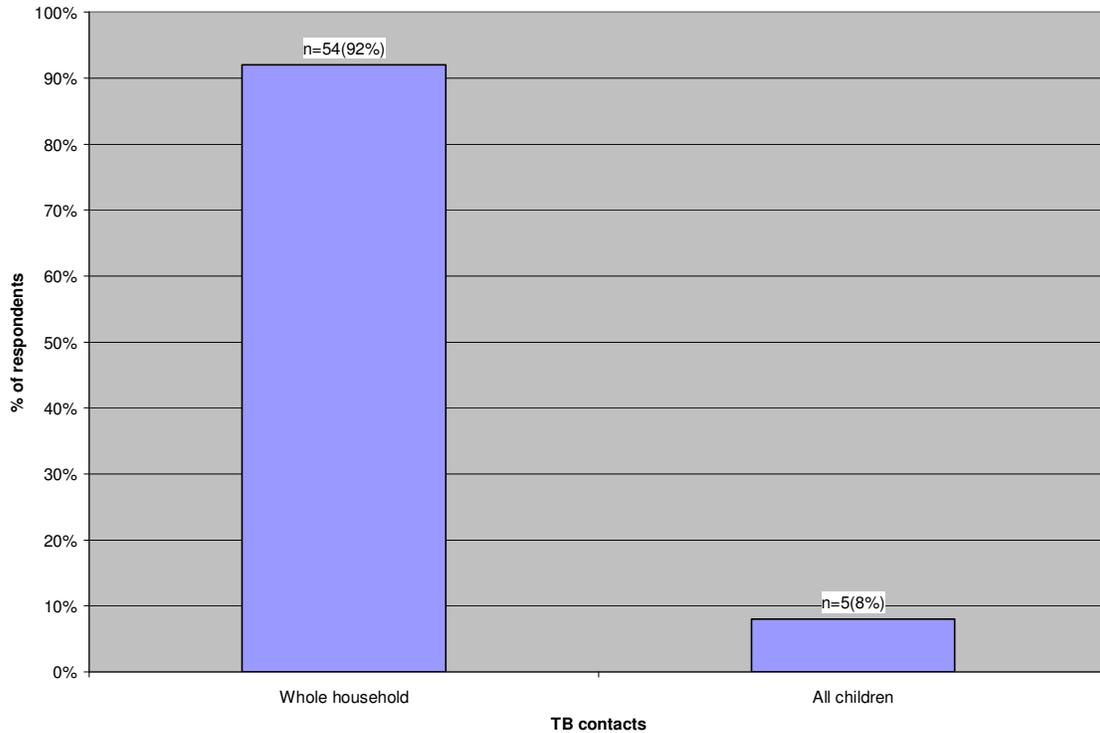
Figure 4.22: Respondents indication of contact with TB patients (n=59)

4.5.7 Respondents' use of prophylaxis

A third (19) of the General Practitioners were not sure who should receive prophylaxis, 25% (15) thought all the contacts should receive prophylaxis, and the remaining 25% (15) mentioned that all the children should receive prophylaxis. Only 17% (10) correctly said only children under five years should receive prophylaxis.
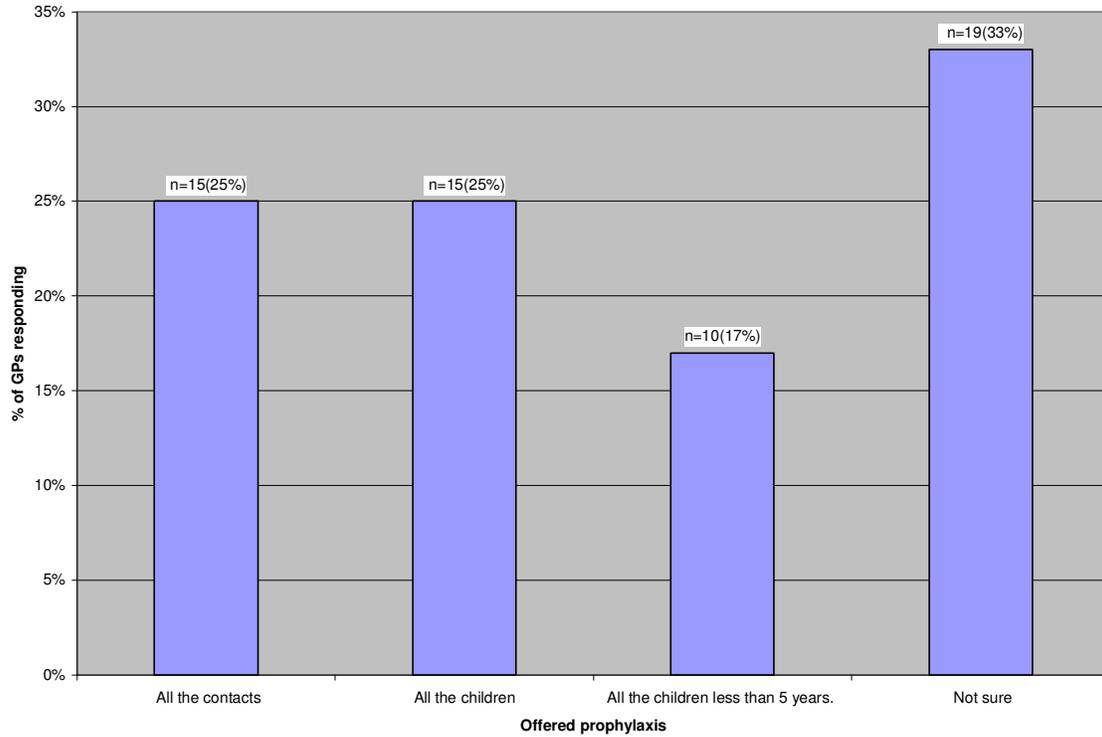
Figure 4.23: Respondents use of TB prophylaxis (n=59)

4.5.8 Continued medical education on TB by respondents

TB-related Continuing Medical Education (CME), or refresher courses, were attended by only one third (19%) of the General Practitioners in the last 12 months. The remaining two thirds (40%) of the respondents had not ever attended TB CME in the last 12 months.

Yes, n=19(33%)

No,n=40(67%)
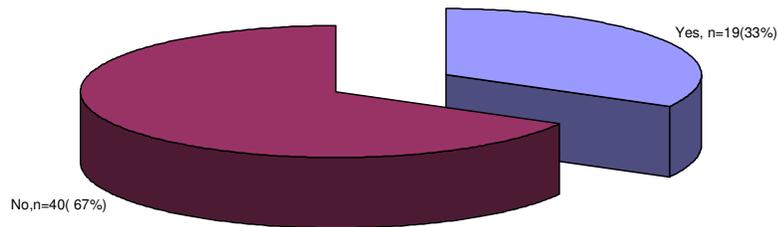
Figure 4.23: Respondents' attendance of CME (n=59)

4.5.9 Respondents' role in TB management

All respondents believed that General Practitioners could play a significant role in the management of TB. Several studies including Lonnroth et al; 2004:580-587; Ardian et al; (2007:1004-1007); Ardian et al; (2007:1101-1107) showed that involvement private practitioners improved the outcome of tuberculosis. Therefore, public-private partnerships between the General Practitioners and the public clinics and hospitals would improve the management of TB, and would help the government to reach the National Strategic Plan 2007-2011 targets.

4.5.10 Diagnosis of drug-resistant TB by respondents

Drug resistant TB was never diagnosed by half (29%) of the General Practitioners, while 5 (8%) diagnosed drug resistant TB only once, whereas 25 (42%) diagnosed drug resistant TB more than once.
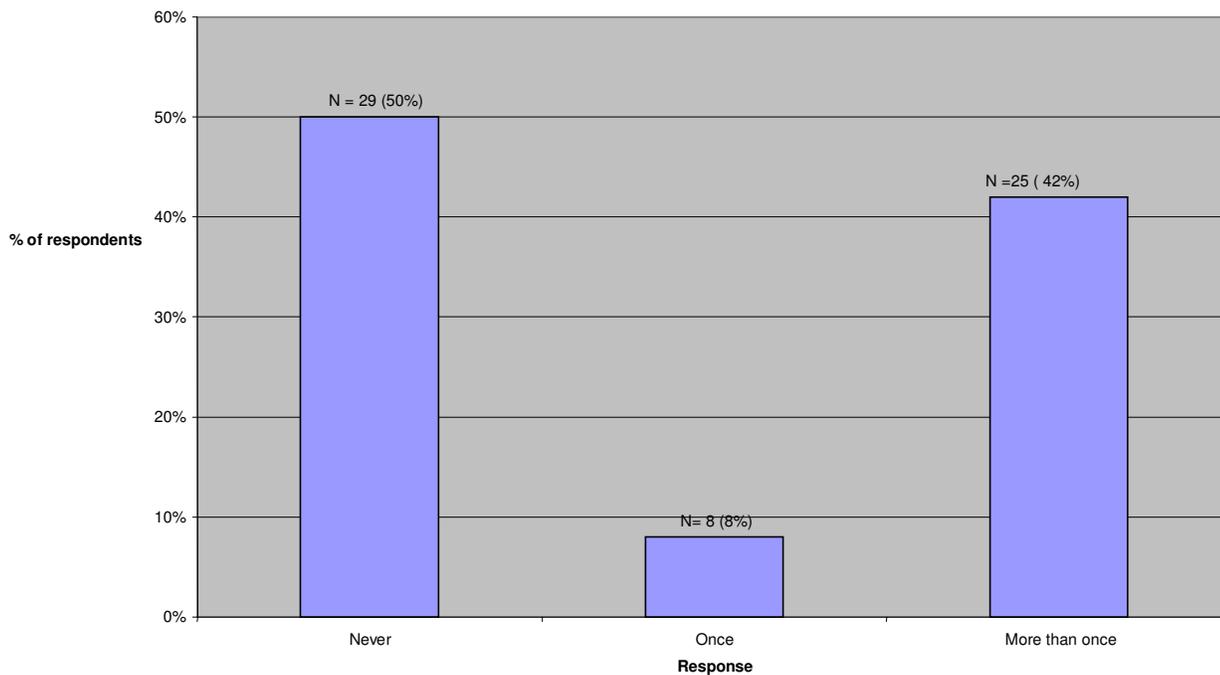
Figure 4.24: Respondents' diagnosis of drug-resistant TB (n= 59)

4.5.11 Reasons for drug resistance as indicated by respondents

Half (29%) of the polled General Practitioners believed that drug resistant TB was due to both failure of the patient to take treatment well and the wrong regimen being prescribed to the patient.

A significant number, specifically 25 (42%), believed that drug resistance was mainly due to failure of the patient to take treatment correctly. A small proportion of the respondents 5 (8%) believed that reasons for the emergence of drug resistant TB are not known.
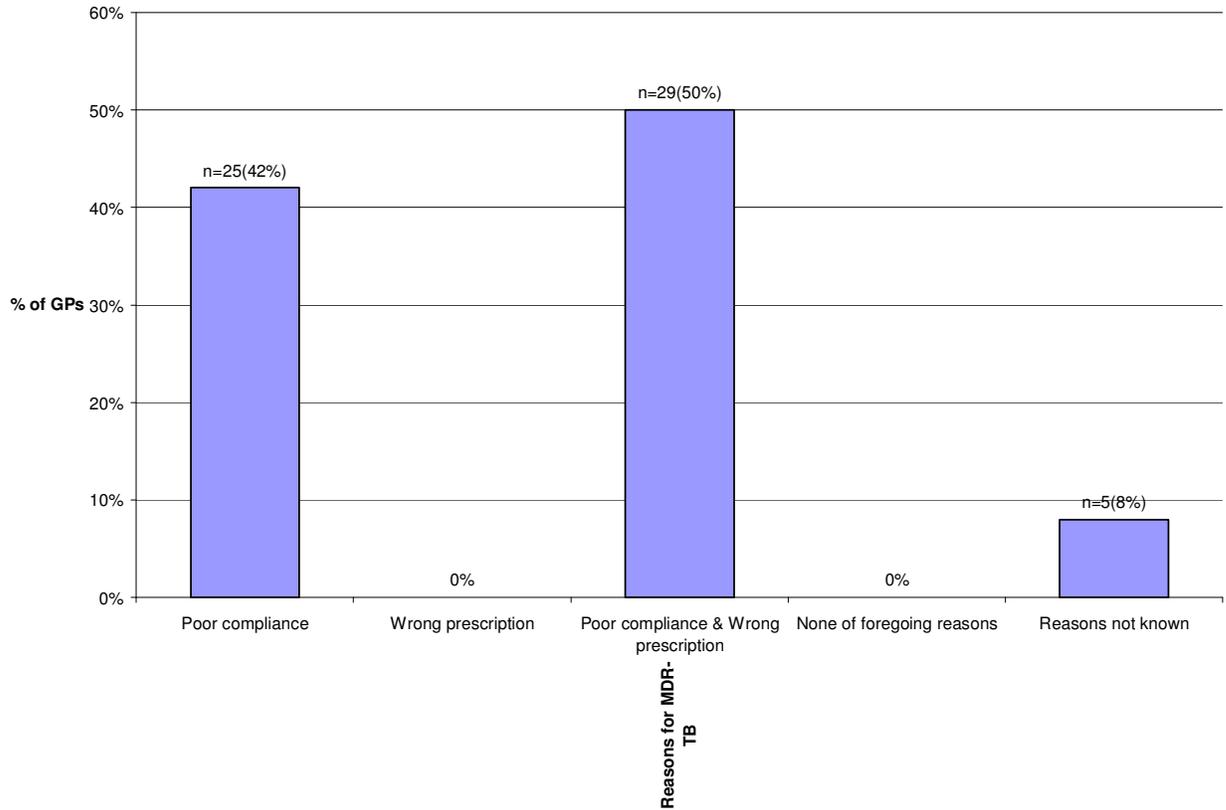
Figure 4.26: Reasons indicated by respondents' for drug resistance

4.6   Conclusion

Some of the General Practitioners, namely 15 (25%), were seeing TB patients and 75% considered sputum examination to be the mainstay for the diagnosis of pulmonary TB. TB/ HIV collaboration was only undertaken by less than half of the General Practitioners.

The first line regimen drugs are known by all the General Practitioners. A majority of the General Practitioners (75%) do not treat TB patients, but rather refer to different facilities. A significant proportion (two thirds) never receives feedback from the referral sites, while the remainder only receives feedback sometimes.

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The awareness of the National TB Guidelines is 75%, and only half of the respondents possess copies; in addition, not all of the doctors with copies make use of the Guidelines.

A very high proportion of the General Practitioners (92%) never participated in DOT. Almost all of them know who the TB contacts are, but a third did not know who should receive TB prophylaxis, and only 17% knew that children under five years should be placed on prophylaxis. Furthermore, only a third (19 out of 59) of the General Practitioners attended TB-related CME in the past 12 months. Half of the polled General Practitioners know the reasons for the emergence of drug resistant TB.

The data analysis was supported with frequencies and summarizing numerical data, utilizing Epi-info. The researcher interpreted the data according to the statistical analysis, and created bar and pie diagrams to enhance the reader's understanding of the study contents.

From this information, conclusions and recommendations will be made and presented in Chapter 5.

CHAPTER 5

Conclusions and recommendations

5.1   Introduction

The purpose of the study is to investigate the level of knowledge of the experiences of private practitioners regarding tuberculosis diagnosis and management and to what extent the National Tuberculosis Management Guidelines are utilized. More specifically, the objectives of the study were to:

To identify the socio- demographic characteristics of private medical practitioners in Tshwane, Gauteng province.

•   To determine the experiences of private medical practitioners regarding their knowledge of diagnosis and management of tuberculosis in Tshwane, Gauteng.

•   To determine if private medical practitioners comply with the National Guidelines for diagnoses and management of tuberculosis in Tshwane, Gauteng province.

•   To determine the role of private medical practitioners in diagnoses and management of tuberculosis, in Tshwane Gauteng province.

This chapter discusses the conclusion and recommendations of the study in terms of the knowledge of the experiences of the private medical practitioners regarding tuberculosis diagnosis and management, and makes recommendations regarding the shortcomings discerned.

5.2   Conclusions

The conclusions will be discussed under the different sections of the questionnaire and acknowledges the responses of the respondents.

5.2.1 Section A: Conclusions on biographic information
The following conclusion results from the responses pertaining to the biographic information received from the private medical practitioners.

5.2.2 The respondents' location
All the 59(100%) respondents were practicing in and around Tshwane in Gauteng. The area was divided into Pretoria West, which included Atteridgeville; Pretoria East including Mamelodi and Eersterus; Pretoria Central including the City Centre; and lastly Pretoria North, which includes Garankuwa, Mabopane and Soshanguve. The location included all the major residential areas around Tshwane, Gauteng and covered both the City Centre and township, where the rate of TB infection is high. These are the areas where most of the TB statistics from Tshwane, Gauteng originate. It can be deducted that the majority of respondents private medical practices centered on the central business area of Tshwane, for the purpose to do business.

5.2.3 The Respondents' duration in medical private practice
According to figure 4.2, more than 31 (53%) respondents have 15 years of experience in private practice. It was therefore deducted that the majority of respondents (40: 85%) have experience as private medical practitioners. All the respondents had experience in the field of their work.

5.2.4 Gender distribution of respondents
Three quarters (44, 75%) of the respondents are males, and this finding is not surprising as males were dominating the medical profession. This finding is supported by Hussain et al, (2005:56) and a study done in the Phillipines by Portero and Rubio, (2003:67) where they found dominance of the males within the medical field.

5.2.5 Additional qualification obtained by respondents

All the respondents (59:100%) indicated that they received formal training of some kind beyond secondary training. The findings were similar to the study by Shimeles et al. (2006:55), in which the majority of the respondents were qualified as medical doctors. It is encouraging to note that most of the respondents obtained additional qualifications to improve on their skills as medical practitioners.

5.2.6 Sessions appointments held by respondents at public clinic or hospital

According to the findings of this study, half of the respondents (29:50 %) held session appointments in public health care facilities close to their location. According to Portero and Rubio (2003:60) and Maamari (2005:34) more than a third of private medical practitioners were working both in the private and public sector, in contrast to the study by Hussain et al, (2005:66) which indicated that an minority of private medical practitioners are working in both public and private sectors.

5.3 Section B: Experiences of private medical practitioners regarding their knowledge on TB diagnosis and management

This section deals with the knowledge of private medical practitioners as experienced with regard the TB diagnosis and management.

5.3.1 Identification of disease categories by respondents

A significant number of the respondents, 25 (42%), were seeing all the disease categories, which include acute illnesses, chronic illnesses, communicable diseases such as, and HIV and AIDS patients. It is positive to note that the disease patterns identified by the respondents share similar characteristics as described in the Standardised Essential Drugs list of primary health in South Africa.

5.3.2 New TB cases identified by the respondents per month

The number of patients seen with TB varied from zero to between 1-5 patients per month. Just under a quarter of the polled respondents, that is, 49 (83%) do keep records of the TB patients diagnosed monthly. The findings of this study were almost similar to that of Shirzadi et al, (2003:67) in Pakistan which indicated that a majority (78%) of the polled doctors kept records of TB patients treated.

It is concluded that an minority of the respondents still follow practices that are in contrast to the National TB Guidelines, which emphasize that TB is notifiable and proper TB records in the form of registers should be kept by all facilities diagnosing or treating TB patients. This could be the reason of non-involvement with TB management of patients.

5.3.3 Diagnoses practices of TB by respondents

More than two thirds of the doctors, or 44 (75%), relied on sputum alone for the diagnosis of pulmonary tuberculosis. According to the findings of this study, a small number of respondents namely five (8%) relied on x-rays alone and therefore never took sputum for TB investigation, while 5 (9%), use both sputum and x-rays for the diagnosis of TB. It is disconcerting to note a small minority poorly apply the National TB Guidelines.

5.3.4 Methods preferred by respondents to diagnose pulmonary tuberculosis

Different reasons such as investigation method with (34; 58%), sputum tests with (10; 17%) and X-rays with (10; 17%) were given for the methods preferred to diagnose pulmonary tuberculosis respectively. It is concluded that the respondents who responded to this question preferred the investigation methods because of it being effective and immediately available, accurate and inexpensive.

5.3.5 Number of sputum specimens taken by respondents

The Tuberculosis Coalition for Technical Assistance (TBCTA,2006:6) recommend that all patients (adults, adolescents and children who are capable of producing sputum) suspected of having pulmonary tuberculosis should have at least two, and preferably three, sputum specimens obtained for microscopic examination.

It is disconcerting to note that only 25 (42%) of the respondents in this study used sputum samples diagnostically.

5.3.6 Respondents' screening of TB patients for HIV/AIDS

More than half of the respondents, namely 34 (58%), screen HIV positive patients for TB, while 25 (42%) do not screen these patients (figure 4.5). The National TB Guidelines recommend that the patient diagnosed with TB should be offered voluntary counseling and testing for HIV, and patients who are HIV positive should always be screened for TB. It is concluded that the prescribed guidelines are poorly applied in the effort to control TB activities.

5.3.7 How often do respondents examine TB patients

More than two thirds 44 (75%) of the respondents never treat TB patients, as they refer them to other facilities.   It is positive to note that the majority of respondents were referring patients to public state facilities which are cheaper and have trained staff treating these patients.

5.3.8 TB treatment regimen applied by respondents

The respondents were divided in view of the treatment for patients with a history of TB according to figure 4.13 as it is evident that 15 (66%) of the respondents correctly indicated that a previous history of TB will influence the regimen applied. The rest of the respondents 7 (33%) indicated that patients are treated despite the previous history of TB. It is concluded that different TB treatment regimens are followed.

5.3.9 Referral practices of respondents

Only 34 (58%) of the respondents referred the patients correctly to the public clinics for TB treatment, while 19 (34%) would refer to both clinic and public hospital where 5 (8%) would refer to patients to private physicians or private hospitals. It is concluded that referral practices are followed in terms of the referral system of the department of health.

5.3.10 Feedback practices of respondents

According to the results from this study, respondents indicated that feedback from the referral sites was sometimes received by only one third, 19 (33%) and two thirds (40%) never receive feedback. It is concluded that respondents do not always receive feedback from the referral sites, which may be the reasons for poor patient care and follow-up visits of the patients.

In conclusion, knowledge of TB diagnosis and management is lacking among General Practitioners.

5.4   Section C: Compliance of private medical practitioners with the National TB Guidelines

This section deals with the awareness of the National TB guidelines.

5.4.1 Awareness and usage of the National TB guidelines by respondents

Forty-four (75%) of the respondents are aware of the National TB Guidelines, where 22 (50%) of these respondents had a copy of the guideline. Fifteen (25%) of the respondents are not aware of the National TB Guidelines (figure 4.4). It is concluded from the responses that those respondents who have a copy of the guidelines available at their health care sites would provide ready information to refer to and thus manage TB patients more effectively.

5.4.2 Participation in Directly Observed Treatment by respondents

Just 5 (8%) out of the 59 respondents ever participated in directly observed treatment (DOT) (figure 4.16). This is unfortunate, as the General Practitioners could act as DOT supporters of the patients who reside within their vicinity, and thus reduce the burden of patients going to public clinics for DOT. It is concluded that, these responses are the result of non-involvement in the management of TB, which could have been the result of the poor management of TB as pointed out in chapter 1.

5.4.3 Investigation and management of TB contacts by the respondents
Investigation of the TB contacts varied, as 9 (17%) investigated TB contacts all the time, while 25 (42%) investigated contacts sometimes, and the remaining 25 (42%) never investigated contacts. The National TB Guidelines recommend that all TB contacts below five years of age should be investigated for TB. Better control of TB would increase if all TB contacts are to be investigated.

5.4.4 Continued medical education on TB by respondents
TB-related Continuing Medical Education (CME), or refresher courses, were attended by only one third (19) of the General Practitioners in the last 12 months. The remaining two thirds (40%) of the respondents polled never attended TB CME in the last 12 months. What is concluded is that training sessions will improve TB management and diagnoses as there is a need for education of the respondents in this study. The Health Professions Council of South Africa (HPCSA) introduced a requirement for CME for all doctors, but unfortunately no specification was included about the various topics that should be covered. HPCSA should make it compulsory to attend at least one TB and HIV CME, per year.

5.4.5 Respondents' role in TB management
All the General Practitioners agree that they can play a major role in the diagnosis and management of TB. Therefore, public-private partnerships between the General Practitioners and the public clinics and hospitals would improve the

management of TB, and would help the government to reach the National Strategic Plan 2007-2011 targets.

5.4.6 Diagnosis of drug-resistant TB by respondents

More than have of the respondents 30 (51%) diagnosed drug resistant TB. It is concluded that the presence of drug resistant TB could have been due to both the failure of the patient to take treatment well and the wrong regimen being prescribed to the patient. These two factors are identified in the National Strategic Plan 2007-2011 as the major causes for development of the multi-drug resistant TB strains.

5.5   Recommendations pertaining to the objectives of the study

From the forgoing conclusions, the following recommendations are made to support the existing knowledge of experiences on the diagnosis and management of tuberculosis.

Continuing Medical Education for doctors is essential. Medical doctors may be "left behind" when new knowledge about a disease develops, and when methods of treatment change. The Health Professions Council should establish priority topics to be covered by each doctor per year, so as to ensure that even doctors who completed their studies years back are in line with the recent changes and kept abreast of developments with updated information. There is therefore a need for extensive education amongst General Practitioners regarding TB diagnosis and management as outlined by the National TB guidelines.   Awareness of these guidelines should be achieved by public-private partnership and feedback from the referral site.

- The knowledge of TB diagnosis and management is lacking among General Practitioners, and there is a pressing need for training regarding diagnosis

and management of TB. The different referral sites are also not giving feedback to the referring General Practitioners

- Private Medical Practitioners should be encouraged to undertake sessions at the local public clinics or hospitals so as empower themselves with the latest trends. Public-private partnerships can empower both the medical doctor, by self-development, and the public clinic, by alleviating staff shortage.

- Record keeping and proper case notification are essential for the country to understand the burden of TB, and therefore to plan properly. All General Practitioners should attend compulsory Continuing Medical Education (CME) as recommended by the Health Profession Council of South Africa (HPCSA). HPCSA should establish various specific topics that each doctor is required to cover and not just focus on the number of points, as is currently the case. TB and HIV and other chronic illnesses, including diabetes mellitus, hypertension and asthma, should be prioritized. Records from Statistics South Africa on the causes of death should be consulted when prioritizing the disease categories to be covered yearly during the different CME.

Public-private partnership should be encouraged, as this will help improve patient care. Furthermore, the range of referral sites should be encouraged to give feedback to the referring site, as such information-sharing will also improve patient care, and help the General Practitioners to develop knowledge in this field.

- More emphasis should be on the acquisition of the patient's previous history of TB infection to assist with a proper management (such as correct medication use, safe medication and the correct regimen to be prescribed to the patient) of the disease to prevent development of TB drug resistant strains.

- The researcher recommends that feedback from the referral sites should be encouraged at all times. This will help with proper follow-up of patients and improve the knowledge of General Practitioners concerning TB management. Enhancing and enforcing the Department of Health's monitoring and evaluation of the different private practices, to ensure that all the primary health care guidelines — including National TB Guidelines — are available in the practices. The importance of training and workshops to equip General Practitioners with the skills needed to deal with the diagnosis and management of TB. A need to conduct follow-up or further research on factors such as the role of public-private partnerships in relation to TB diagnosis and management.

In view of the findings derived from the data analysis, impressions and conclusions of this study, it is clear that much emphasis should be placed on training, development and awareness on TB diagnoses and management to developing the necessary knowledge and skills.

5.6   Limitations of the study.

The respondents were mainly from the townships, semi-urban areas and City Centre. Up-market areas, including Pretoria East suburbs and Centurion, were not covered.

The questionnaire contained two questions which were, as it emerged, confusing to respondents, regarding the number of years in private practice and the number of years as a qualified doctor.

Furthermore, the question regarding any other qualification did not add any value to the study as the researcher did not specify this as any other "medically related" qualification.

There is limited related literature in existence regarding General Practitioners operating in South Africa and, therefore, the researcher was forced mostly to use literature from other countries and a limited number of sources from South Africa.

5.7   Conclusion

This chapter provided a brief overview of the purpose of the study, the scope of findings, the recommendations and the proposed training course. The conclusions of the study dealt with the need for Continued Medical Education and participation in public-private partnerships on the part of the respondents, and their knowledge and understanding of the diagnosis and management of tuberculosis and regulations within the National TB Guidelines. Furthermore, it measured the respondents' ability to apply the National TB guidelines in terms of the management of tuberculosis activities.   The last two sections of this chapter indicated the respondents' ability to interpret and understand the Guidelines pertaining to the practices of the different General Practitioners.

Regarding the recommendations derived from the conclusions of the study, it is clear that a strong emphasis should be placed on the Continuing Medical Education of General Practitioners in the form of workshops and refresher courses, and through forming public-private partnerships. Similarly, there should also be monitoring and evaluation of the standard of care in the various General Practices.

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ANNEXURES

Annexure A: Clearance certificate from MEDUNSA

UNIVERSITY OF LIMPOPO
Medunsa Campus

MEDUNSA RESEARCH & ETHICS COMMITTEE

CLEARANCE CERTIFICATE

P O Medunsa
Medunsa
0204
SOUTH AFRICA

Tel: 012 - 521 4000
Fax: 012 - 560 0086

MEETING: 06/2008

PROJECT NUMBER: MREC/PH/139/2008: PG.

PROJECT :

Title:	The level of knowledge of private practitioners regarding tuberculosis diagnosis and management in Gauteng
Researcher:	Dr GW Seaketso
Supervisor:	Mr H van der Heever
Department:	Health System Management and Policy
School:	Public Health
Degree:	MPH

DECISION OF THE COMMITTEE:

MREC approved the project.

DATE: 6 August 2008

PROF GA OGUNBANJO
CHAIRPERSON MREC

2008 -08- 0 6

Note:
i)   Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.
ii)   The budget for the research will be considered separately from the protocol.
       PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

African Excellence - Global Leadership

Annexure B: Request letter

<div align="right">

P.O. Box 419

MEDUNSA

0204

07 July 2008

</div>

Dear Doctor

Request to participate in the study

I am a Master of Public Health (MPH) student at the University of Limpopo, Medunsa campus. I am currently working as a General Practitioner at Atteridgeville West of Pretoria.

I am conducting a study on the Management of Tuberculosis by private General Practitioners. I have a questionnaire with a set of questions that I request you to fill. I will make the result of my study available to all the participants. The questionnaire will be confidential and will only be used for the purpose of this study.

I will appreciate it if you can send back the completed questionnaire at the earliest convenient time.

Yours truly,

Goitsemodimo Seaketso

GW Seaketso (Dr)

Annexure C: Consent form for the participants

MEDUNSA CONSENT FORM

Statement concerning participation in a Research.

Name of Study

AN INVESTIGATION OF DIAGNOSIS AND MANAGEMENT OF TUBECULOSIS AMONGST PRIVATE MEDICAL PRACTITIONERS IN TSHWANE DISTRICT

I have read the information on and heard the aims and objectives of the proposed study and was provided the opportunity to ask questions and given adequate time to rethink the issue. The aim and objectives of the study are sufficiently clear to me. I have not been pressurized to participate in any way.

I understand that participation in this Study is completely voluntary and that I may withdraw from it at any time and without supplying reasons. This will have no influence on the regular treatment that holds for my condition neither will it influence the care that I receive from my regular doctor.

I know that this Study has been approved by the Research, Ethics and Publications Committee of Medunsa. I am fully aware that the results of this Study will be used for scientific purposes and may be published. I agree to this, provided my privacy is guaranteed.

I hereby give consent to participate in this Study.

....

Name of volunteer   ....

....
Place.   Date.   Witness

_____

Statement by the Researcher

I provided verbal and written information regarding this Study

I agree to answer any future questions concerning the Study as best as I am able.

I will adhere to the approved protocol.

                                         Goitsemodimo Seaketso

Dr GW Seaketso   _____   15 July 2008   Pretoria

Name of Researcher   Signature   Date   Place

Annexure D: Questionnaire

Please complete the questionnaire according to your personal views and experiences; it will take approximately 25 minutes.

Please do not write your name on the questionnaire.

The questionnaire will be kept in a safe place to ensure confidentiality.

Please mark with a tick (√) in the box where applicable. Where applicable you may mark more than one response alternative.

A. Biographic Information

1. **In which area of Tshwane do you practice? Choose from the list ?**

a)   Atteridgeville   ☐

b)   Mamelodi   ☐

c)   Garankuwa   ☐

d)   Soshanguve   ☐

e)   Mabopane   ☐

f)   City centre   ☐

2. **What is your gender?**

a) Male   ☐

b) Female   ☐

3. **What are your qualifications?**

(a)   MBChB   ☐

(b)   MBBS   ☐

(c)   MD   ☐

4. Do you have any other qualifications apart from your doctor's degree?

(a)   Diploma   ☐

(b)   Another degree   ☐

(c)   No   ☐

5. For how long have you been practicing as a General Practitioner?

0-5 years	6-10 years	11-15 years	15+ years	For office
1	2	3	4	use only

6. Do you ever do sessions at the local public clinic or hospital?

    a) Yes   ☐

    b)   No   ☐

B. Knowledge on TB Management and Diagnoses

7. What patients do you normally see at your consulting rooms?
Mark all those applicable in your medical practice?

a) TB patients   ☐

b) HIV and AIDS patients   ☐

c) Respiratory tract infection patients   ☐

d) Other acute illnesses   ☐

e) Mainly chronic patients   ☐

8. How many new TB patients do you see on average per month?

a) None   ☐

b) 1-5   ☐

c) More than 5   ☐

d) Do not keep record.   ☐

9. Which of the following investigations do you utilize for diagnosing pulmonary   tuberculosis?

a)   Sputum specimen only   ☐

b)   X-rays only   ☐

c)   Both sputum and X-rays   ☐

d)   Other (specify)……………………………………………….

10. The above investigations are preferred because they are:

a) Effective and immediately available   ☐

b) Inexpensive   ☐

c) Diagnoses are accurate   ☐

d) Recommended by the National TB guidelines.   ☐

11. How many sputum specimen/s do you normally take for diagnosing pulmonary tuberculosis?

a)   No sputum specimen   ☐

b)   1 specimen   ☐

c)   2 specimens   ☐

d)   3 specimens   ☐

12. Do you routinely screen all HIV positive patients for tuberculosis?

a)   Yes   ☐

b)   No   ☐

c)   Sometimes   ☐

13. Do you routinely screen all TB patients for HIV?

a) Yes   ☐

b) No   ☐

c) Sometimes   ☐

14. If you treat tuberculosis patients how often do you see these patients for a follow-up?

a) Never treat them ☐

b) Weekly ☐

c) Monthly ☐

d) Bi-monthly ☐

15. If you treat TB patients, do you

a)   Put them all on Regimen 1 ☐

b)   Put them on Regimen 2 ☐

c)   Decide the on the regimen depending on the previous history of TB. ☐

d)   Previous history of TB does not play an important role. ☐

16. What is your first line of treatment?

First-line drugs

Pyrazinamide: ☐

Ethambutol: ☐

Rifampicin ☐

Isoniazid ☐

Second-line drugs

Aminoglycosides ☐

Thioamides ☐

Fluoroquinolones ☐

17. Where do you refer TB patients?

a)   Local clinic ☐

b)   Private physician ☐

c)   Local public hospital ☐

d)   Local Private Hospital ☐

18. <u>Do you ever get feedback from the referral sites?</u>

a)   Always   ☐

b)   Never   ☐

c)   Sometimes   ☐

C. NATIONAL TB GUIDELINES:

19. <u>Are you aware of the National TB guidelines?</u>

a) Yes   ☐

b) No   ☐

20. <u>Have you ever used the National TB guidelines?</u>

a) Yes   ☐

b) No   ☐

21. <u>Do you have a copy of the National TB guideline?</u>

a) Yes   ☐

b) No   ☐

22. <u>Have you ever participated in DOT for tuberculosis?</u>

a) Yes   ☐

b) No   ☐

23. <u>When do you investigate tuberculosis contacts?</u>

a) All the time   ☐

b) Sometimes   ☐

c) Never   ☐

24. <u>Who are the contacts?</u>

a) Everybody living in the same household   ☐

b) All the children in the same household   ☐

c) All the children less than 5 years   ☐

25. To whom do you give prophylaxis? Only mark the applicable alternatives.

a) All the contacts ☐

b) All the children ☐

c) All the children less than 5 years. ☐

26. In the last 12 months, have you attended Continuing Medical Education (CME) on tuberculosis?

a) Yes ☐

b) No ☐

27. Do you think GPs can play a role the management of tuberculosis?

a) Yes ☐

b) No ☐

28. Have you ever diagnosed drug resistant TB?

a) Never ☐

b) Once ☐

c) More than once ☐

29. Drug resistant TB is mostly due to the following reason/s. Only mark the applicable alternatives.

a) Failure to take treatment correctly by the patient ☐

b) Wrong regimen prescribed to the patient. ☐

c) All of the above reasons ☐

d) None of the above reasons ☐

e) Reasons are not known ☐

Thank you for your participation

Annexure E: Population size

GP's in Private Practice

0001	Pretoria Boxes	27
0002	Clydesdale Pretoria	13
0006	Atteridgeville Boxes	4
0008	Atteridgeville Streets	2
0101	Mamelodi Boxes/busse	2
0122	Rethabile Streets	7
0126	The Tramshed/Die Tremloods	20
0132	Sunnyside Pta Boxes/busse	14
0152	Soshanguve Streets	5
0164	Soshanguve Box/Busse	3
0190	Mabopane	1
0208	Ga-Rankuwa Streets	1

99