

STRATEGIES USED TO IMPLEMENT THE NATIONAL GUIDELINES ON
PREVENTING AND EARLY MANAGEMENT OF MULTI-DRUG RESISTANT
TUBERCULOSIS (MDR-TB) AT THE BUFFALO CITY MUNICIPALITY CLINICS IN
EAST LONDON EASTERN CAPE PROVINCE

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A Thesis submitted in partial fulfilment of the requirements for the
Degree Masters of Nursing Science (Magister Curationis)

In the Faculty of Science and Agriculture at the University of Fort Hare

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UNIVERSITY OF FORT HARE DEPARTMENT OF NURSING SCIENCE

2013

DECLARATION

I hereby declare that this thesis is my own work and it has not been submitted for a degree in any other university. I further give the University of Fort Hare permission to lend it to other students and institutes for purposes of scholarly research.

Signature.....

DEDICATION

I dedicate this study to my late parents Joe William and Maniwe Ndema whose memories have been a source of inspiration to me. Their resolve to do everything in their power to support each of their children to receive much more education has been realized.

I also pray that this study will be a source of inspiration to my children Siphosethu, Bongo, and Qhawekazi that they can achieve whatever they set their minds to, academically.

ABSTRACT

The purpose of the study was to explore and describe the strategies used by nurses to implement the national treatment guidelines to prevent, detect and manage multi-drug resistant tuberculosis (MDR-TB) patients.

Tuberculosis remains one of the leading infectious diseases and the major cause of death worldwide with estimates of 9.2 million new TB cases in 2008 and 1.7 deaths including 200 000 in clients co-infected with HIV. South Africa is currently ranked 3rd among the 22 high TB burden countries in the world. The HIV/AIDS epidemic contributes significantly to the upward trend in TB morbidity and it is estimated that more than 50% of TB patients are also HIV positive (South African Department of Health 2009:10).

The current rate of tuberculosis infections as a result of new infections as well as re-infections of patients is of concern to the disease control and policy making bodies of South Africa. Questions regarding the effectiveness of tuberculosis policies and programmes emerge at all times (Luhulima, Netshandama and Davhana-Maselesele, 2008: 36). Patients with multidrug-resistant (MDR) tuberculosis (TB) are at high risk of treatment failure. It is anticipated that early identification of MDR-TB and appropriate treatment will improve patient outcome and disease control. This study intends to explore the effectiveness of health systems in the prompt identification and management of MDR patients.

This study was conducted using a qualitative, explorative and descriptive design. A purposive sample of clinics and professional nurses was selected, and voluntary participation was ensured. The data was collected through individual interviews which were audio taped and then transcribed verbatim.

Findings revealed that MDR-TB guidelines were available at the clinics. The professional nurses implemented the guidelines to prevent, detect and manage multi-drug resistant tuberculosis, by screening and testing symptomatic high risk groups, contact tracing and monitoring, providing initial counselling and education to

patients and family, preparing patients for admission when indicated and coordinating referrals to the centralised MDR-TB unit. However, there were notable constraints with regards to the management of MDR-TB patients and the overall TB programme. These included MDR-TB specific training, staff shortages, dysfunctional community DOT programme, shortage of beds at the MDR-TB treatment centres, and patient factors like defaulting, migration for various reasons, alcoholism. All these constraints call for intensified strategic management at both policy and facility level.

It is also necessary that all policies related to patient management need extensive scientific study to monitor and evaluate their effectiveness. More research studies are required on policy analysis and utilization.

ACKNOWLEDGEMENTS

I would like to thank God almighty for the strength, endurance and blessings He offered me throughout my studies. It has been for me a very enriching and humbling experience to have been supervised by Dr N. Tshotsho for the duration of this study. This work would not have seen the light of day had she not guided, encouraged and motivated me to its completion. I am greatly indebted to her. I would also like to acknowledge the following that made this research possible:

- Participants for their willingness to sacrifice their time and participate in the study. Without them there would have been no study
- Dr Nzama for reading through the work and giving advice where necessary contributed to the success of this study
- My family for understanding my busy and sometimes unfair schedule that made me to miss some important gatherings
- My colleague Mrs Noluvo Gosangaye, her infectious work ethic advanced my enthusiasm

The following institutions for their assistance during the study:

- University of Fort Hare Research Ethics Committee
- The Epidemiological Research & Surveillance Management Directorate, Eastern Cape, Department of Health, for giving me permission to conduct the study.
- Buffalo City Local Service Area Sub-district
- University of Fort Hare Govan Mbeki Research and Development Centre.

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ACRONYMS:

DOT	Directly Observed Treatment
DOTS	Directly Observed Treatment Short Course
DST	Drug Susceptibility Testing
IPC	Infection Prevention and Control
INH	Isoniazid
MDR-TB	Multi-drug Resistant Tuberculosis
NTP	National Tuberculosis Program
RFP	Rifampicin
SLD	Second-line Drugs
TB	Tuberculosis
XDR-TB	Extensively drug Resistant Tuberculosis
MRC	Medical Research Council
NHLS	National Health Laboratory Services
SADoH	South African Department of Health

CHAPTER 1

1.1. Introduction and Background

This study explores the strategies used by professional nurses in the implementation of National guidelines for prevention, early detection and management of patients suspected of suffering from multi-drug resistant Tuberculosis (MDR-TB) at the health facilities of the Buffalo City municipality in East London.

Tuberculosis remains one of the leading infectious diseases and the major cause of death worldwide with estimates of 9.2 million new TB cases in 2008 and 1.7 million deaths including 200 000 in clients co-infected with HIV. South Africa is currently ranked 3rd among the 22 high TB burden countries in the world. The HIV/AIDS epidemic contributes significantly to the upward trend in TB morbidity and it is estimated that more than 50% of the TB patients are also HIV positive (South African Department of Health, 2009:9).

The current rate of tuberculosis infections which occur as a result of new infections as well as re-infections of patients is of concern to the disease control and policy making bodies of South Africa. Questions regarding the effectiveness of tuberculosis policies and programmes emerge at all times (Luhlima, Netshandama and Davhana-Maselesele, 2008: 36). Patients with multidrug-resistant (MDR) tuberculosis (TB) are at high risk of treatment failure. It is anticipated that early identification of MDR-TB and appropriate treatment will improve patient outcomes and disease control. This study intends to explore the effectiveness of health systems in the prompt identification and management of MDR patients .

Multidrug-resistant (MDR) tuberculosis (TB) is a disease caused by Mycobacterium tuberculosis strains which are resistant to, at least, isoniazid and rifampicin. This is a growing public health and clinical problem worldwide (World Health Organisation, 2007: 397). In 2008 an estimated 440,000 cases of MDR tuberculosis emerged

globally. India and China carry the greatest estimated burden of MDR; together they account for almost 50% of the world's total cases (Nathanson, Nunn, Uplekar, Floyd, Jaramillo, Lonroth, Weil and Raviglione, 2010: 1050-1058).

The 2008 World Health Organization report revealed that prevalence of the drug resistant tuberculosis has risen to the highest rate ever recorded in history. More than three quarters of the estimated cases of MDR TB occur in previously untreated patients. The proportion of MDR cases among new cases and previously treated cases of TB reported globally from 1994 through to 2009 ranged from 0 to 28% and from 0 to 61% respectively (Nathanson et al: 2010). In South Africa the estimate ranged from 0.9% to 2.6% among new TB patients and from 3.9 to 13.7% among patients who had previously been treated for TB (Andrews, Shah, Gandhi, Moll and Friedland, 2007:482).

According to Andrews et al (2007:484), TB drug resistance is caused by inadequate therapy enabling selection and growth of resistant populations (i.e. acquired resistance) or by infection with a drug-resistant strain (i.e. primary resistance). Diagnosis is established by laboratory methods requiring advanced laboratory capacity; however, these methods are not available in most resource-limited settings. Compared with treatment of drug-susceptible TB, treatment of MDR-TB is longer, more complicated, more expensive, and less successful. Although efforts to expand drug-susceptibility testing (DST) and the availability of second-line drug (SLD) therapy have been emphasized over the past decade, the majority of MDR-TB patients are increasing globally and are still undiagnosed and untreated in many instances (Andrews et al: 2007:484).

The management of MDR-TB is the responsibility of the TB programme at all levels that is National, Provincial, district, sub-district and facility. The management of MDR-TB at all levels is expected to include at least three steps namely:

- Drug susceptibility testing of specimens from MDR-TB clients
- Rapid tracing and evaluation of contacts
- Monitoring of compliance (South African Department of Health, 2009:80).

The factors that predispose to the development of drug resistant TB have been the element of many research studies and the findings thereof have found expression in policies and guidelines formulated by health bodies and governments to guide TB programmes in the management of drug resistant TB (Casal, Vaquero, Rinder, Tortoli, Grosset, Rusch-Gerdes, Gutierrez and Jarlier, 2005: 62-7). The identification of any of these factors in individual patients should make health care providers act promptly in identifying possible drug resistant TB in patients in order to facilitate case management.

MDR TB has negative repercussions for the individual, the TB control programme, and the community as it is much harder to treat. The drugs used to treat it are costly, less effective and more toxic. Without the benefit of both the main bactericidal Isoniazid (INH) and best sterilizing Rifampicin (RFP) drugs in the regimen, this effectively means an increase in both the duration of treatment and in the infectiousness of the patient (Ormerod: 2005: 73-74).

TB-infection prevention and control (IPC) protocol has the potential to reduce the risk of TB transmission in settings with limited resources. Internationally, TB-IPC is based on a three-level hierarchy of controls, namely administrative, environmental, and respiratory protection. The magnitude of the local TB burden, exacerbated by limited financial and human resources at public healthcare facility level, challenges the applicability and impedes the implementation of international guidelines. (Sissolak, Marais and Mehtar, 2011: 2).

Limitations in effective TB control worldwide have caused a shift in perspective; it is no longer considered a mere technical bio-medical intervention. This applies to IPC practices at both hospital and community level. Effective TB-IPC requires adherence to measures which should be regarded as a chain of responsibilities, involving healthcare staff and decision-makers, as well as patients, and society. Several recent studies have looked at non-biological influences on TB control, from the point of view of the patient, community and health care providers (Sissolak et al, 2011:3).

A delay in the diagnosis and effective management of MDR TB further extends the period of infectiousness, it is therefore imperative that TB control programmes are equipped to identify and manage the cases of MDR TB promptly and rapidly.

1.2. Problem Statement

In 2005, South Africa had the third highest TB epidemic on the continent after Nigeria, Ethiopia, India and China (WHO report: 2008, 2). South Africa reports more than 100 000 TB cases yearly. This is an incident rate of more than 500/100 000 population. South Africa's main challenges in the control of TB are:

- Late presentation of patients in health care facilities
- Late detection of TB and
- High interruption rate (WHO,2007:4)

As a primary health care professional nurse working at one of the Buffalo City Clinics the researcher has noticed an increase in the number of multi-drug resistant TB patients infected with a resistant strain of the TB bacillus being treated at the clinic. This could be that these patients were infected by MDR patients who either still undiagnosed, not are maintaining the infection control practices or are TB retreatment patients who have developed resistance to the first line drugs.

According to a study conducted by Singh, Upshur and Padayatchi (2007: 116), challenges fuelling the MDR-TB and XDR-TB outbreaks in South Africa are the lack of infection control in institutions, including the lack of simple administrative measures such as triaging of patients, as well as the more sophisticated environmental controls of ultra violet lights and personal respiratory protection. Professional nurses are the implementers of TB policies. They are mostly the first and at times the last persons to encounter TB patients in their various stages of disease including new TB patients and MDR TB patients. During the course of this study, the researcher intends to determine the strategies used to implement the National MDR-TB Guidelines. The researcher did not find any study on identification of strategies used by nurses to implement the MDR- TB treatment guidelines.

1.3. Aim of Study

The aim of this study is to explore and describe the strategies used by professional nurses to implement the national treatment guidelines to prevent, detect and manage MDR-TB patients.

1.4. Objectives

The objectives of this study are to:

- Establish the knowledge of National treatment guidelines followed for patients suspected with multi-drug resistant tuberculosis.
- Explore and describe strategies used to implement the national guidelines on preventing and managing MDR TB patients.
- Explore and describe the challenges faced by health workers (nurses) in implementing the national guidelines in preventing and managing MDR TB suspects and patients.
- Based on the results of this study to make recommendations for effective implementation of the National MDR-TB guidelines.

1.5. Research Questions

Interest in a particular topic usually initiates the research process, but it is the familiarity with the subject that helps define an appropriate research question for a study (Haynes, 2006: 881-886). The question asked in this study is:

To what extent are MDR-TB guidelines implemented by professional nurses in the Buffalo City Municipality Clinics.

1.6. Significance of the study

Patients with MDR-TB are at high risk of treatment failure and death. This study will assist the health care facilities in the effective implementation of the national guidelines on preventing and managing MDR TB patients to improve treatment outcomes and disease control.

1.7. Definition of terms

In this study the following terms are defined:

Tuberculosis

Multi-drug resistant tuberculosis

Extensively drug resistant tuberculosis

Direct observed treatment short course

National guidelines on preventing and managing MDR TB patients

Strategies

1.7.1. Tuberculosis

The South African Department of Health (2009: 8) defines tuberculosis (TB) as a common and in many cases lethal infectious disease caused by various strains of mycobacteria usually mycobacterium tuberculosis (MTB). TB usually attacks the lungs but can also affect other parts of the body. It is spread through the air when people who have the active MTB infection cough, sneeze, or transmit their saliva through air

1.7.2. Multi-drug resistant tuberculosis

South African Department of Health (2009:84) define MDR-TB as a tuberculosis disease caused by strains of mycobacterium tuberculosis that are resistant in-vitro to both rifampicin and isoniazid with or without resistance to other drugs.

MDR-TB is difficult and expensive to treat. The social and economic burden of this problem is already evident in South Africa where the cost of treating a case of MDR-TB is up to 25 times the cost of treating an uncomplicated drug susceptible case.

1.7.3. Extensively drug resistant tuberculosis

Extensively drug resistant tuberculosis (XDR-TB) refers to a situation in which there is resistance in vitro to the following drugs:

- Isoniazid and rifampicin and
- Any of the fluoroquinolones and
- One or more of the second line injectable drugs (capreomycin, kanamycin amikacin)

(South African Department of Health.2009: 85).

XDR-TB has a very high mortality, with rates of over 90% recorded amongst HIV co-infected.

1.7.4. Directly Observed Treatment Short-course (DOTS)

Directly observed treatment short course is a management package that ensures effective diagnoses and treatment recommended for tuberculosis control that combines five fundamental components:

- Government commitment
- Case detection using sputum smear microscopy
- Standardized treatment regimen directly observed by a health worker or community worker for at least the first two months
- A standardized recording and reporting system that allows assessment of treatment results
- Regular supply of drugs (South African Department of Health, 2009:46).

1.7.5. National guidelines on preventing and managing MDR-TB patients

The National guidelines on preventing and managing MDR-TB patients were prepared with the idea that they will be used by public health professionals involved in the complex and difficult task of management of multidrug resistant tuberculosis patients in South Africa in response to the Sixty-second World Health assembly's

resolutions on the prevention and control of MDR-TB and XDR-TB. The recommendations contained in the guidelines address the most topical question concerning the programmatic management of MDR-TB, case finding multi-drug resistance, treatment regimens, monitoring the response to treatment and selecting models of care (WHO: 2011).

1.7.6. Strategies

A strategy is a plan of action designed to achieve a vision (www.managementguide.com). In this study strategy is defined as an action taken by nurses for implementing the national MDR-TB guidelines for effective programme management.

1.8. Conceptual Framework

Professional nurses are at the core of the implementation of TB policies and guidelines, regardless of where they work. They are likely to be the first and probably the last persons to encounter TB patients in their various stages of the disease including MDR-TB patients, therefore nurses should be able to use evidence based guidelines in providing patient care. The conceptual framework of this study had its point of departure using the evidence based practice model. (Holzemer, 2010: 238) states that in this model health professionals are expected to demonstrate that they have applied the best available knowledge gained from research findings, which requires access to valid, reliable and updated information about the effects of health care interventions at the point of care.

This model also recognizes that translation of research into practice requires a solid grounding in change theory, principles of research utilization, and use of standardized guidelines (Pipe, Wellik, Buchda, Hansen and Martyn, 2005: 365-70).

The model has the following four processes for overcoming barriers that inhibit the integration of evidence based practice into clinical practice: Systematic literature reviews- published research is an important source of information that helps policy-makers and clinicians make appropriate decisions; Practice based

evidence- practitioners need relevant information they can easily comprehend and readily apply to their particular setting and patients; Evidence- based, shared decision-making between caregivers and patients- clinical decisions needs to be informed not only by the best available evidence about the effectiveness of interventions but also by benefits and risks and treatment alternatives; Evidence-based symptom management- In managing chronic illness, a major task is identifying and addressing multiple problems in a manner that gives priority to those most in distress and what is of most concern to the patient. (Holzemer 2010: 238-245)

1.9. Research Methods

1.9.1. Study Design

The current study will be qualitative, explorative and descriptive in nature. The researcher seeks to explore the extent to which MDR-TB guidelines are implemented by professional nurses working at the Buffalo City Metropolitan clinics. Polit and Beck (2004: 718) describe exploratory research as a study that explores the dimensions of a phenomenon being researched and descriptive research as studies that have as their main objective the accurate portrayal of the characteristics of a situation.

1.9.2. Study population

Brink (2008: 132) refers to population in research as the entire group of persons or objects that are of interest to the researcher or that meets the criteria that the researcher is interested in studying. Polit and Beck (2004: 726) define population as the entire set of individuals who have some common characteristics. The study will be conducted within the 29 clinics operating under Buffalo City Metropolitan Municipality. All professional nurses working at the TB units will be the total population for the study.

1.9.3. Sample and Sampling method

Random- purposive sampling was utilised. This sampling method was judgemental in nature and it involved the conscious selection by the researcher of certain aspects to be included in the study (Burns and Grove, 2007:475). Purposive sampling is based on the belief that the researcher's knowledge about the population can be used to hand-pick sample members. Researchers might decide purposely to select subjects who are judged to be knowledgeable about the issues being studied (Polit and Beck 2004: 294). In sampling researchers select subsets or elements from a larger population of study (Holzemer 2010: 87). In this study all 29 Buffalo city Metropolitan clinics were the site of the study. The sample had the characteristics that the researcher had planned and met the criteria for inclusion in the study. The following selection criteria was used

- The participant had experience in rendering TB services in a primary health care setting
- They were well versed in English
- One nurse per clinic was interviewed

This was done until saturation was reached.

1.10. Data Collection

Data collection methods are ways in which the data are actually obtained from subjects or participants (De Vos 1998: 82). Polit and Beck (2004: 716) also describe data collection as the gathering of information to address a research problem. In this study data collection was undertaken through the use of an interview guide which was posed to the informants. The researcher was the instrument facilitating the data collection process using qualitative data collection skills e.g. probing.

Interviews were conducted with professional nurses who were on duty during the time of data collection and a tape recorder was used to record each interview, which later was transcribed verbatim. A notebook was also used to capture attributes as displayed by participants.

1.11. Ethical Considerations

Ethics is defined by Burns and Grove (2009: 61) as the means of striving for rational end when others are involved. The nurse researcher has the responsibility of conducting nursing research in an ethical manner. Nursing research not only requires expertise and diligence but also requires honesty and integrity.

1.11.1. Ethical Approval

Ethics approval was sought from Fort Hare University research ethics committee Eastern Cape Department of Health, Buffalo City Metropolitan Municipality Health management team including the Provincial and District manager's approval were also sought before embarking on the research study. See appendix 1, 2 and 3 in page 64, 65 and 66.

Protection of Human rights: human rights are claims and demands that have been justified in the eyes of an individual or by the consensus of a group of individuals. The researcher has an ethical responsibility to recognize and protect the rights of the participants. The human rights that require protection in research are:

- **The right to self-determination** which is based on the ethical principle of respect for persons. The researcher informed the participants fully about the proposed study and allowed them to voluntarily choose to participate in the study.
- **The right to privacy-** privacy is the individual's right to determine the time extent and general circumstances under which personal information will be shared with or withheld from others.
- **The right to anonymity and confidentiality**-the rights of the participants were protected and confidentiality was maintained. Burns and Grove (2009: 196) describe confidentiality as the researcher's management of private information shared by a participant that must not be shared with others without the authorization of the participant. The names of the participating

professional nurses were not recorded during the interviews. Permission was sought for use of tape recorders to record the interview.

1.11.2. Informed consent

Obtaining informed consent from human subjects is essential for conducting ethical research. This means that the person involved in the research should have legal capacity to give consent (Burns and Grove, 2009: 201). Informed consent was sought from all participants. Informed consent according to Polit and Beck (2004: 151) means that participants have adequate information regarding the research, are capable of comprehending the information and have the power of free choice in participation. See appendix 4 in page 67.

1.12. Data Analysis

Polit and Beck (2004: 716) define data analysis as the systematic organization and synthesis of research data and testing of research hypothesis using those data. The voice recorded interviews were transcribed verbatim by the researcher. The themes emerging from the transcripts were recorded. A theme is described by Polit and Beck (2004: 578) as an abstract entity that brings meaning and identity to a current experience and its variant manifestation. Data analysis was conducted concurrently with data collection until no new information emerged.

1.13. Delineation of Chapters

This research will be presented in a number of chapters as follows:

Chapter 1 Introduction and rationale

Chapter 2 Review of literature

Chapter 3 Methodology

Chapter 4 Data Analysis and Discussion of Results

Chapter 5 Conclusion, Limitations and Recommendations

1.14. Conclusion

In conclusion this chapter has provided an overview of the research study, the problem statement, purpose and ethical consideration. The next chapter presents the literature review for a broader understanding of the phenomenon under study based on the views of other authors.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This chapter focuses on the literature relevant to the problem under study. The purpose of a literature review is to help the researcher identify information already known about a particular situation or phenomenon and the knowledge gaps that exists (Burns and Grove 2005: 93). This knowledge not only prevents one from unintentionally duplicating another person's research, it also gives one an understanding and insight in placing one's topic within a logical frame (Gay, Mills and Aurasian 2006: 29).

In the previous chapter an overview of the dissertation was given. In this chapter a literature review is provided on aspects pertaining to the control of TB, such as research done on MDR-TB as a health problem.

2.2. Incidence of Tuberculosis

Sculier, Haileyesus and Lieddardt (2011: 1) in their review of TB literature state that there was an estimated 9.4 million incident of TB cases in the world in 2009 of which an estimated 1.1 million were living with HIV. Also the World Health organisation estimates that there were 9.27 million new TB cases and 1.78 million deaths from TB worldwide in 2007. Figure 1 shows the regional incidences of tuberculosis of all types.

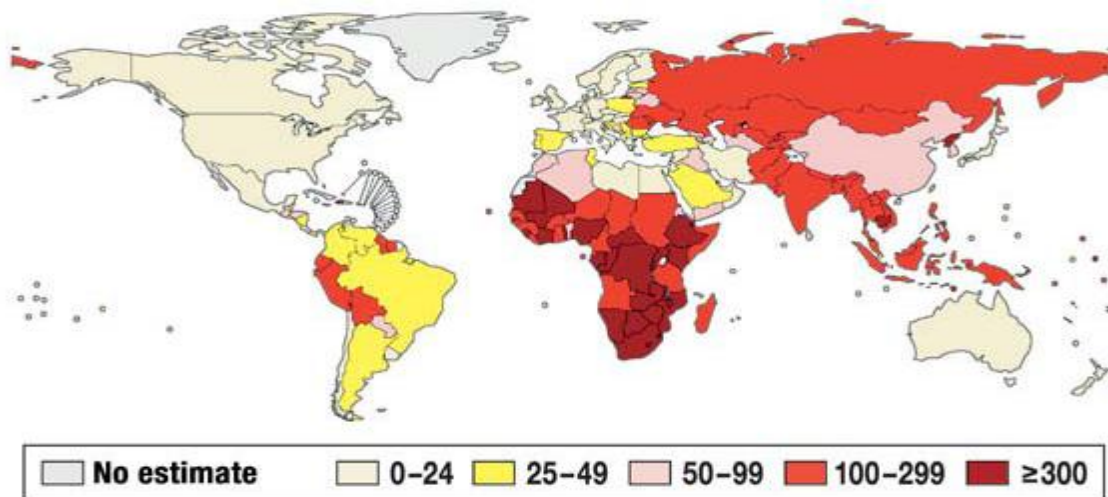


Figure 1: WHO estimates of the incidence of tuberculosis (all types) per 100 000 population per year in the world population in 2007. Source: World Health Organisation report 2007
Source: World Health Organisation report 2009

South Africa is currently ranked 3rd among the 22 high TB burden countries in the world, lagging behind only on two countries, China and India (South African Department of Health, 2011). The HIV/AIDS epidemic contributes significantly to the upward trend in TB morbidity and it is estimated that more than 50% of the TB patients are also HIV positive (SADOH 2009:10).

The tuberculosis problem in South Africa is largely as a result of historical neglect and poor management systems, compounded by the legacy of fragmented health services. Prior to the introduction of the Tuberculosis Register in 1995, cure rates were unknown, and consequently control efforts could not challenge poor performance. The implication of this failure is evident from the fact that in 1997 a cure rate of only 54% could be recorded, with the consequence of continued high rates of transmission in the country (Fourie, 2011).

2.2.1. New infections

Luhulima, Netshandama and Davhana-Maselesele (2008:36) state that the current rates of tuberculosis infections occur as a result of new infections as well as re-infections of patients this is of concern to the disease control and policy making

bodies of South Africa. Questions regarding the effectiveness of tuberculosis policies and programmes emerge at all times. Patients with multidrug-resistant (MDR) tuberculosis (TB) are at high risk of treatment failure. It is anticipated that early identification of MDR-TB and appropriate treatment will improve patient outcome and disease control. This study intends to explore the effectiveness of health systems in South Africa in the prompt identification and management of MDR patients.

2.3. Multi-drug Resistant Tuberculosis Worldwide

In 2008 an estimated 440,000 cases of MDR tuberculosis emerged globally. India and China carry the greatest estimated burden of MDR together accounting for almost 50% of the world's total cases (Nathanson et al 2010:1050-1058)

The 2008 World Health Organization report revealed that prevalence of the drug resistant tuberculosis has risen to the highest rate ever recorded in history. More than three quarters of the estimated cases of MDR TB occur in previously untreated patients. At present, an estimated 5% of the more than 9 million persons who develop TB around the world every year are infected with a multi-resistant strain of tuberculosis. The current WHO report also contains data on extensively drug resistant tuberculosis (XDR-TB) which was first described in 2006. XDR-TB is defined by WHO as MDR-TB that is additionally resistant to at least one of the fluoroquinolones and to one of the three injectable second line drugs, amikacin, kanamycin and capreomycin. In South Africa the estimates ranged from 0.9% to 2.6% among new TB patients and from 3.9 to 13.7% among patients who have previously been treated for TB. (Andrews et al 2007: 482-90).

In table 1 South Africa and Zimbabwe have the highest incidence, mortality and TB/HIV co-infection rates among the 22 high burden countries.

Table: 1. 22 High burden Countries

Country	Incidence of TB per 100 000 population	Mortality per 100 000 population	HIV prevalence in incident TB cases	MDR in new cases in %
South Africa	948	230	73	1.8
Zambia	748	265	69	1.9
Cambodia	495	89	7.8	<0.05
Mozambique	431	127	47	3.5
DR Congo	392	82	5.9	2.3
Kenya	353	65	48	1.9
Ethiopia	378	92	19	1.6
Uganda	330	93	39	0.5
UR Tanzania	297	78	47	1.1
Nigeria	311	93	27	1.8
Philippines	290	41	0.3	4.0
Indonesia	228	39	3.0	2.0
Bangladesh	223	45	0	3.5
Pakistan	181	29	2.1	3.2
Vietnam	171	24	8.1	2.7
Myanmar	171	13	11	4.0
India	168	28	5.3	2.8
Afghanistan	168	30	<0.05	3.3
Thailand	142	21	17	1.7
Russ Federation	110	18	16	13
China	98	15	1.9	5.0
Brazil	48	4	1.4	0.9

WHO estimates of the incidence and mortality of TB per 100 000 population (all types), of the prevalence of HIV in incident TB cases and of the MDR rate among new cases in the year 2007.

Source: World Health Organisation Report 2009

2.3.1. The Incidence of MDR-TB in South Africa

The WHO 2011 report on MDR-TB revealed that in 2010 approximately 1.8% of all new TB infections were multi-drug resistant a, number which jumps to 6.7% for those cases of TB which were retreated.

Also a study done by Medical Research Council (MRC) during the period of 2004 January to 2007 January on NHLS laboratories on the records of MDR and XDR cases in all provinces in the country except Kwa-Zulu Natal, showed that during that period, 120 000 Mycobacterium tuberculosis cultures were given a drug susceptibility test; out of that number 10 000 patients were identified as having MDR.

The distribution varied considerably by province and it shows that Western Cape had the highest number of identified MDR TB cases followed by Gauteng and Eastern Cape

- Western Cape 3689
- Gauteng 2131
- Eastern Cape 2040
- Free State 517
- North West 508
- Northern Cape 488
- Mpumalanga 413
- Limpopo 214

2.4 Reasons for the development of resistance

Drug resistance was first recognized as a major problem in 1992, when 12% of the tuberculosis patients in New York City were found to have MDR tuberculosis.

MDR tuberculosis spread around the world because of a lack or inadequacy of tuberculosis control programs, insufficient resources, and inadequate protective measures against infection, as well as delayed diagnosis of tuberculosis (WHO 2008). During the course of the study the researcher seeks to determine the extent to which the guidelines are being implemented. The following are special risk factors for MDR tuberculosis:

- Prior treatment with anti-tuberculosis drugs
- Immigration from an area where MDR tuberculosis is highly prevalent, or contact with MDR tuberculosis patients
- Imprisonment
- Possibly, HIV infection (Loddenkemper and Hauer ,2010: 9-19)

Factors that predispose to the development of drug resistant TB have been the element of many research studies and the findings thereof have found expression in policies and guidelines formulated by health bodies and governments to guide TB programmes in the management of drug resistant TB (Casal et al, 2005: 62-7). The identification of any of these factors in individual patients should make health care providers act promptly in identifying possible drug resistant TB in patients to facilitate case management.

In the early years in 1944 when the first anti tuberculosis drug streptomycin was introduced, there were impressive therapeutic outcomes. There were, however, many recurrences of tuberculosis thereafter, because of the selection of streptomycin-resistant bacterial strains by mono-therapy (Loddenkemper and Hauer, 2010: 9-19)

According to Andrews, et al (2007: 482-90) TB drug resistance was caused by inadequate therapy enabling selection and growth of resistant populations (i.e.

acquired resistance) or by infection with a drug-resistant strain (i.e. primary resistance).

Loddenkemper and Hauer (2010: 9-19) suggest that faulty prescriptions, treatment compliance problems, inadequate intestinal re-absorption of drugs and poor drug quality are factors that can promote the development of resistance.

Victor (2011) shows that in South Africa drug resistant TB is predominantly driven by transmission of a TB bacterium (strain) which is already drug resistant and that infects healthy individuals. This is probably due to slow diagnostic methods, which allow undiagnosed drug resistant cases to spread the disease while inappropriate treatment leads to the amplification of drug resistance in the communities.

2.5. National guidelines on preventing and managing MDR-TB patients

The South African National Department of Health has implemented a MDR-TB management programme since 2000. The first two editions of the guidelines were published in 2006 and 2008 as a collaborative effort of many partners. Most of who were members of the green light committee. Current National Drug resistant TB guidelines stipulate that all drug resistant TB patients be hospitalized for at least six months (South African Department of Health 2011).

A clinical audit of drug resistant TB services and the World Health Organization (WHO) led review of the TB programme, revealed that the current programme is facing many challenges including: delayed initiation of treatment, inadequate bed capacity, and poor infection control practices in hospitals and poor adherences to treatment (South African Department of Health 2011). This has led the researcher to explore the experiences and practices of professional nurses involved in the detection and management of multi drug resistant TB patients.

The National guidelines on preventing and managing of MDR-TB patients were prepared with the idea that they would be used by public health professionals

involved in the complex and difficult task of management of multidrug resistant tuberculosis patients in South Africa in response to the Sixty-Second World Health Assembly's resolutions on prevention and control of MDR-TB and XDR-TB. The recommendations contained in the guidelines address the most topical question concerning the programmatic management of MDR-TB, case finding multi-drug resistance, treatment regimens, monitoring the response to treatment and selecting models of care (South Africa department of health: 2011)

The current guidelines focus on the detection and treatment of drug resistant TB in settings where resources are limited. The priority topics by WHO in this field and by external experts were:

- Case finding use of rapid molecular test investigation of the contacts and other high risk groups
- Regimens of MDR-TB and their duration in HIV positive and negative patients
- Monitoring during treatment
- Model of care

2.6. Diagnosis of MDR TB

Diagnosis is established by laboratory methods requiring advanced laboratory capacity. However these methods are not available in most resource-limited settings. Although efforts to expand drug-susceptibility testing (DST) and the availability of second-line drug (SLD) therapy have been emphasized over the past decade, the majority of MDR-TB patients are increasing globally and are still undiagnosed and untreated (Andrews et al: 2007:482-90).

2.7. Management

The success of TB control programs is highly dependent on good management which should focus on preventing MDR by ensuring appropriate treatment of drug resistant TB through the implementation of a functional DOTS -plus program

(Frieden & Driver, 2003: 823-837). Ormerod (2005:21) states that the approach of the DOTS-plus programme requires a sustainable and functional national TB programme, drug availability and support for drug resistant monitoring.

The management of MDR-TB is the responsibility of the TB programme at all levels that is national, provincial, district, sub-district and facility. Management of MDR-TB at all levels is expected to include:

- Drug susceptibility testing of specimens from MDR-TB clients
- Rapid tracing and evaluation of contacts
- Monitoring of compliance (South African Department of Health 2009).

MDR TB has negative repercussions for the individual, the TB control programme, and the community as it is much more difficult to treat. The drugs used to treat it are costly, less effective and more toxic. Without the benefit of both the main bactericidal Isoniazid (INH) and best sterilizing Rifampicin (RFP) drugs in the regimen, this effectively means an increase in both the duration of treatment and infectiousness of the patient (Ormerod: 2005:22).

TB-infection prevention and control (IPC) protocol has the potential to reduce the risk of TB transmission in settings with limited resources. Internationally, TB-IPC is based on a three-level hierarchy of controls, including administrative, environmental, and respiratory protection. The magnitude of the local TB burden, exacerbated by limited financial and human resources at public healthcare facility level, challenges the applicability and impedes the implementation of international guidelines. (Sissolak, Marais and Mehtar, 2011:262).

Limitations in effective TB control worldwide have caused a shift in perspective; it is no longer considered a mere technical bio-medical intervention. This applies to IPC practices at both hospital and community level. Effective TB-IPC requires adherence to measures which should be regarded as a chain of responsibilities, involving healthcare staff and decision-makers, as well as patients, and society. A study done

by Sissolak et al (2011:262) have looked at non-biological influences on TB control, from the point of view of the patient, community and health care providers.

A delay in the diagnosis and effective management of MDR TB further extends the period of infectiousness, it is therefore imperative that TB control programmes are equipped to identify and manage the cases of MDR TB promptly and rapidly.

At the centre of TB management are nurses working either in hospitals or in primary health care settings who should implement policies that are aimed at addressing TB. While the efforts to move towards an integrate approach were highlighted and reinforced by National TB Control Policy Guidelines the process did not tackle the question of how to re-orientate a system based on specialised TB hospitals to an integrated approach where nurses in primary health settings will be responsible for the care of MDR-TB patients. It is therefore necessary to include nurses in the evaluation of MDR-TB policy guideline implementation.

2.8. Conceptual Framework

The conceptual framework of the current study will have its departure by using the evidence based practice model. Holzemer (2010: 238) states that in this model health professionals are expected to demonstrate that they have applied the best available knowledge gained from research findings, which requires access to valid, reliable and updated information about the effects of health care interventions at the point of care.

The model provides a pragmatic, theory-driven framework for empowering clinicians in the process of evidence-based practice. The researcher will outline the application of the model and its relation to this study.

2.8.1. Evidence Based Health Care

Haynes, Sackett, Gray, Cook, and Guyatt (1996: 196) define evidence based health care as a conscientious and judicious use of current best evidence from clinical care research in the management of individual patients. Nurses must be able to discern current best evidence from a full spectrum of studies of the care of patients and to

provide themselves with quick access to dependable up to date sources of information in which to link with research evidence. For the purpose of this study MDR-TB policy guidelines and protocols were the sources of information.

Key terms on this definition are: Conscientious, judicious use and current best evidence for clinical research

- Conscientious means that evidence is applied consistently to each and every patient for whom it is relevant (Haynes et al: 1996). For the purpose of this study this refers to how the professional nurses refer to guidelines provided for identification of MDR-TB patients
- Judicious use calls for the incorporation of clinical expertise that balances the risk and benefits of diagnostic test and alternative treatment for each patient and takes into account his or her unique clinical circumstances including co morbid conditions and preferences (Haynes et al: 1996). In this study the researcher looked at what strategies the professional nurses use to implement the national MDR-TB guidelines in managing patients diagnosed with MDR-TB.
- Current best evidence for clinical care research means that practitioners must be able to discern current best evidence from the full spectrum of studies of the care of patients and to provide themselves with very quick access to dependable up to date sources of information in which the link with research evidence is explicit and honest (Haynes et al 1996). Within the context of this study current best evidence means the implementation of national MDR-TB guidelines to achieve optimal health

2.9. Conclusion

Literature read for the literature review of this study focused mainly on the exploration of strategies used to implement the national guidelines in prevention and early management of MDR-TB. The chapter also focuses on National guidelines implementation and management of patients with MDR-TB

The debate on this study shows that tuberculosis is presented largely as a result of historical neglect and a poor management system, compounded by the legacy of fragmented health services. In a study conducted by Luhailima & Davhana-Maselesele (2008: 32) they state that” of concern to the disease control and policy making bodies in South Africa is the current rate of new infections.”

CHAPTER 3: RESEARCH METHOD AND DESIGN

3.1. Introduction

This chapter provides a detailed description of the research design and method applied in this study. The methods used to ensure trustworthiness and ethical standards will also be described in more detail.

3.2. Research Design

A qualitative, explorative and descriptive method was utilised in order to achieve the objectives espoused in chapter one. The research design was aimed at exploring the methods used for implementing MDR-TB guidelines by nurses working in Buffalo City Metropolitan clinics.

3.2.1. Qualitative Research

This design was used for the purpose of understanding and interpreting the meanings of the experiences of the professional nurses dealing with MDR-TB patients in facilities in the Buffalo City Metropolitan.

3.2.2. Exploratory Research

This approach aims to explore and describe the strategies used to implement National guidelines on preventing, early detection and managing of MDR TB patients and also to explore and describe the challenges faced by professional nurses in implementing the guidelines.

3.2.3. Descriptive Approach

A descriptive design enabled the researcher to describe the experiences of Professional nurses implementing the MDR TB National guidelines. The researcher attempted to provide an accurate description of the professional nurses' experiences.

3.3. Study population

The study was conducted within the 29 clinics operating under Buffalo City Metropolitan Municipality. All 29 professional nurses working at the different TB units were the total population for the study as one professional nurse is allocated for TB management in each clinic

3.3.1. Sample and Sampling method

This study used purposive sampling. Purposive sampling is based on the belief that the researcher is knowledgeable about the population from which sample members can be chosen. (Burns and Grove, 2007: 475). All 29 Buffalo city Metropolitan clinics were selected. One professional nurse per clinic was interviewed as only one nurse is allocated for TB management in each clinic. In one clinic an enrolled nurse was interviewed as he was the one allocated at the TB unit. Data collection continued until the researcher believed that saturation had been achieved, that is when no new themes were emerging from the participants. The saturation took place when the researcher had interviewed ten (10) professional nurses.

Inclusion Criteria

Participants were the professional nurses, who permanently worked in the 29 Buffalo City Municipality Clinics and allocated to the different TB units.

Exclusion Criteria

All other professional nurses allocated to the 29 Buffalo City municipality clinics not directly involved with the TB programme, were excluded in the study.

3.4. Data Collection

In this study data collection was performed through use of semi-structured open ended key informant interviews posed to the informants. Themes were identified and verified by means of literature control.

Data collection commenced after receiving permission from the Eastern Cape Department of Health's Ethics committee and the Sub-District Manager of the Buffalo City metropolitan. The research proposal was also approved by the Ethics Committee of the University of Fort Hare (see Appendices 1, 2 and 3 in pages 64, 65 and 66).

Data was collected from the professional nurses who were allocated to work in a TB unit at the time of collection of data. A semi-structured interview guide with both closed and open ended questions was administered (see appendix 5 in page 68).

3.4.1 .Open-Ended Semi-structured Interviews

The researcher was the primary instrument for data collection. According to De Vos, Strydom, Fouche, Poggenpoel and Schurink (2000: 297), face-to-face interviews help the researcher to understand the closed world of individuals, families, organizations and communities. Face to-face interviews assist the researcher to make meaning of the responses offered by the participants during the interview sessions.

The researcher met with participants before the actual interview session in order to prepare them regarding the information that the study required. The preparation included introduction of the researcher to the participant, explaining the purpose of the research, obtaining a written informed consent (see appendix 4 page 67) for the interview and negotiating an appropriate time for the interview. The participant was reminded that her/his participation was voluntary and that she/he was entitled to withdraw from the study at any time if she/he so wished. The researcher also obtained permission to use a tape recorder, explained the need to use a tape recorder during the interview and made it clear that the audio-tapes would be destroyed on completion of the study. Once the interviewee had indicated that she/he understood the process and had no further questions, the interview was undertaken at the agreed upon time and venue.

3.4.2. Key Informant Interview

A key informant open ended interview was administered to each of the health care nursing professionals who were directly involved in the TB program providing care and treatment to TB patients in the selected facilities in the Buffalo City Metropolitan clinics. Only one professional nurse directly involved in the TB program was interviewed in each facility as specified in the methodology. A tape recorder was used during the interview to capture the discussions as well as assist in the analysis of data. The recordings were later transcribed verbatim.

The three objectives of the study were addressed in the key informant interview and the questions addressing each in the interview tool are recorded below.

- Establish the familiarity of the participant with MDR-TB
 - What is MDR-TB?
 - Have you received any training on MDR-TB?
 - With the training that you received what were the aspects that were included?
- To establish the knowledge of the treatment guidelines followed for patients suspected of having multi-drug resistant tuberculosis and to determine how MDR-TB patients are managed (National guidelines Implementation).
 - How do you implement the guidelines?
- To investigate obstacles that healthcare nursing professionals face in managing MDR-TB patients
 - What challenges have you encountered in the implementation of the guidelines?
 - What would you recommend to ensure the effective implementation of the guidelines
 - What other important information do you want to raise relating to this discussion?

The venue for the interviews was a consulting room at one of the clinics where the service is provided and where minimal disturbances were likely to occur. The researcher and the participant sat facing each other in order to maintain eye contact

and promote communication. The researcher once again explained the necessity of tape-recording the interview. A few minutes into the interview the researcher would stop and check that the recording equipment was functioning properly.

The three aforementioned questions were used to guide the interview session; certain important areas were identified and explored at the relevant times.

Open-ended questions were prepared for the interviewing sessions. Specific interviewing techniques were used to acquire more information and these will now be discussed briefly:

Exploring obtains all the pertinent data on a particular subject or feeling in order to acquire mutually understood information and to move beyond the superficial and deal with the more complex or hidden meaning of the message (Burns and Grove, 2009: 700).

Clarifying is an attempt to find the meaning of the communicated message in order to establish mutual understanding, identify common meaning associated with terms or phrases, promote and encourage further communication and decrease distortions in perception (Kreigh and Perko, 1988: 262).

Focusing concentrates on a specific thought or feeling regarding a specific point in order to sustain goal-orientated communication, draw the attention of the interviewee to specific data and encourage the sender to separate relevant from irrelevant data (Kreigh and Perko, 1988: 263).

Using silence is communication without verbalization (Kreigh and Perko, 1988: 263). Allowing the interviewee to assume the initiative and conveys interest and acceptance on the part of the interviewer.

Reflective summary reflects in your own words the ideas, opinions, and feelings of the interviewee to make sure that you understand the interviewee correctly (De Vos. 1998: 311). Minimal response, such as nodding and uttering “yes” or “hmm”, ensure that the interviewee is encouraged to respond (De Vos.1998:308-309).

Probing is a technique used by interviewers to obtain more information in a specific area of the interview (Burns and Grove 2009: 716). Follow up questions were posed by the researcher to explore an issue in greater depth.

Listening is the art of paying attention to the speaker (Kreigh and Perko,

1988: 247) and is a passive act requiring no special talent. Listening consists of more than just hearing and occurs only when the researcher does not contribute verbally to what is being said or communicated.

The aforementioned verbal communication skills used by the interviewer were supported by non-verbal communication such as appropriate eye contact and a relaxed, forward leaning position. Each interview session took approximately thirty minutes, at which time the researcher concluded by summarizing the information provided and thanking the participant for her time and assistance.

The interviewer transcribed the audio taped information verbatim on the same day where possible in order to allow accurate recall of what was said if the recording was unclear. The field notes taken during the interview aided in the transcription.

3.4.3. Available Guidelines and other resources

A question on the availability of National Multi-Drug Resistant Tuberculosis Guidelines, their accessibility in the clinic, knowledge regarding what current policies were contained and where to retrieve information about MDR-TB if and when needed, drove the interview process in all the interviews.

3.5. Pilot Study

A pilot study was conducted to test the appropriateness of the selected methods for this study. The researcher selected two trial interviews as a pilot study. This was carried out according to the methods described in data collection and data analysis. The audio-tape was transcribed and analysed. Themes and sub themes were identified.

The researcher and the supervisor met to decide on the appropriateness of the data collection and analysis methodology. As a result of this meeting the researcher implemented modifications to the data collection and analysis procedures and instruments before further interviews took place. The modifications were beneficial in achieving the aims and objectives of this study.

3.6. Ethical Consideration

Ethics is defined by Burns and Grove (2009: 61) as the means of striving for rational end when others are involved. The nurse researcher has the responsibility of conducting nursing research in an ethical manner. Nursing research not only requires expertise and diligence it also requires honesty and integrity. The researcher gave due consideration to ethical principles in this study. These principles include the principles of beneficence, respect for human dignity and justice (Polit and Hungler, 1995: 356-358). These concepts will now be discussed.

The principle of beneficence: This is considered to be the most fundamental ethical principle. This principle states that, above all, the researcher should do no harm. It encompasses freedom from harm, freedom from exploitation and the careful assessment of risk-to-benefit ratio before considering research (Brink, Van der Walt and Van Rensburg 2010:32-33). In this study permission was obtained from the Eastern Cape Department of Health Amathole District, the Eastern Cape Ethics Committee and the University of Fort Hare Ethics Committee.

Respect for human dignity principle: This was maintained by ensuring the participants' right to self-determination or voluntary participation (Polit and Hungler, 1995: 358). The participants had the right to refuse to participate in the study. They also had the right to withdraw from the study at any time without fear of coercion.

The researcher ensured ethical acceptability of the study by implementing the ethical standards of the South African Society for Nurse Researchers; these include the quality of the research, confidentiality and anonymity (Olsen, 2003: 122-137). Informed consent was obtained from each participant before data collection commenced. When the participant agreed to participate in the study she waived the right to confidentiality.

The principle of justice: According to Polit and Hungler (1995: 362), this concerns justice regarding the treatment of participants in research. They have the right to fair treatment and the right to privacy. The researcher upheld the right to privacy during

the research by ensuring that only data necessary to the research objectives were collected (Brink, Van der Walt and Van Rensburg 2010:33).

The researcher endeavored to avoid exposing the participants to physical harm.

Interviews were only commenced after the researcher had met with the participants in order to establish rapport and put them at ease regarding data collection. The participants retained the right to withdraw from the study at any time, even after data collection, without fear of victimization. If requested, the researcher promised to provide the participants with the study results at a follow-up interview once the research had been completed in order to allow them the opportunity of learning from the research (Burns & Grove. 2005:187).

3.7. Data Analysis

Polit and Beck (2004: 716) define data analysis as the systematic organization and synthesis of research data and testing of research hypothesis using those data. The voice recorded interviews was transcribed verbatim by the researcher. The themes arising from the interviews were then recorded per study objectives and any other themes emerging were noted. The researcher followed Tesch's approach (in De Vos, 1998: 343-344) in analysing the transcripts and field notes. This included the following steps:

The transcripts were read through carefully and the researcher took note of important ideas. All identified themes were listed and arranged in terms of major themes, unique themes and leftovers. Each topic was assigned a code that was written next to the appropriate piece of transcribed text. Categories were created by describing themes more clearly; the total list was reduced as much as possible by grouping similar categories. A final decision on the abbreviation for each category was made; these codes were alphabetized.

3.8. Literature Control

A literature study was done following the data analysis to determine the merit of the research findings. The literature study was guided by the themes identified in the interviews and subsequent data analysis. The researcher conducted a review of the

literature in order to verify the findings. The search included professional journals, textbooks, Department of Health guidelines and online bases such as Medline. Literature control was conducted for the purposes of placing the research in the context of established knowledge and identification of those results supported by literature or ones that claimed a new contribution.

3.9. Trustworthiness

Guba's model of Trustworthiness of Qualitative Research (Brink, Van der Walt and van Rensburg 2012: 172), was used to ensure the credibility of the study. This model is well developed and used extensively in qualitative research situations. This model is based on four criteria that allow the researcher to establish trust worthiness; these include credibility, dependability, confirmability and transferability. These criteria and their strategies will now be discussed.

3.9.1. Credibility

Brink et al (2012: 172) explain that credibility alludes to confidence in the truth of the data and the interpretation thereof. Strategies to achieve credibility include prolonged engagement, peer debriefing and triangulation.

The researcher spent an extended time with the participants in order to achieve **prolonged engagement** while conducting face to face interviews until saturation was reached. In this way the researcher gained an in-depth understanding of the phenomenon as well as specific aspects of the participants such as experiences. The researcher met the participants at the clinics prior to the interviews in order to build up relationships with them. The interview sessions provided sufficient time to allow participants to verbalize freely.

Peer debriefing is a method of keeping the research honest. The participants should have a general understanding of the study and should be able to debate with the researcher each step of the way (Brink et al, 2012: 172). The researcher did not discuss the research process and findings with colleagues who are experts in the implementation of the TB programme due to time constraints.

3.9.2. Dependability

According to Moule and Goodman (2009: 189) dependability refers to the provision of evidence such that if the study were to be repeated with the same or similar participants, its findings would be similar. The term therefore refers to the stability of the data over time (Brink et al 2012: 173). Methods to ensure dependability are:

Enquiry Audits: In enquiry audits the auditor examines documentations of critical incidents and the process of investigation. The audit enquiry involves compiling records such as field notes, audio recordings, analysis notes, coding details, pilot study, survey instruments and proposal. An audit enquiry was implemented throughout the study by the study supervisor.

3.9.3. Confirmability

Confirmability is concerned with establishing whether the data represent the information provided by the participants and that the interpretation of the data is not fuelled by the researcher's imagination (Brink et al, 2012: 173). Techniques to enhance confirmability are enquiry audit, reflexivity and triangulation.

3.9.4. Transferability

Brink et al (2012: 173) describe transferability as the ability to apply the findings in other contexts or to other participants. Strategies to enhance transferability are:

Thick descriptions which entail the collection and provision of sufficient detailed descriptions of data,

Purposive sampling maximises the range of specific information obtained from and about the particular context by purposefully selecting the participants in terms of knowledge of the phenomenon under investigation and the location. Ten clinics were purposively selected by the researcher and professional nurses who were directly involved with providing care to TB patients were interviewed.

Data Saturation occurs when additional participants provide no new information and when the themes that emerge become repetitive. The researcher collected data until no new information emerged from the participants.

3.10. Conclusion

This chapter has provided a full description of the research design and methods used. Steps taken to ensure the trustworthiness of data collected have been provided, as well as measures taken to ensure high ethical standards. In Chapter 4, the researcher will discuss the data analysis and results.

CHAPTER 4: FINDINGS AND LITERATURE CONTROL

4.1. Introduction

This chapter deals with the analysis, presentation and interpretation of data. Polit and Beck (2004: 716) define data analysis as the systematic organization and synthesis of research data and testing of research hypothesis using those data. The data should be able to reflect the views of the professional nurses with regards to the strategies they use to identify and manage multi-drug resistant patients in their facilities and the challenges they encounter in the process of implementing the National Multi-drug resistant guidelines.

4.2. Method of Analysis

The voice recorded interviews were transcribed verbatim by the researcher. The themes arising from the interviews were then recorded per study objectives and any other themes emerging were noted. The researcher followed Tesch's approach (in De Vos, 1998: 343-344) in analysing the transcripts and field notes. This included the following steps:

The transcripts were read through carefully and the researcher took note of important ideas. All identified themes were listed and arranged in terms of major themes, sub-themes and leftovers. Each topic was assigned a code that was written next to the appropriate piece of transcribed text. Categories were created by describing themes more clearly; the total list was reduced as much as possible by grouping similar categories. A final decision on the abbreviation for each category was made; these codes were alphabetized. The data material for each category was assembled; a preliminary analysis of the information and comparison between the different interview documents was done.

4.3. Presentation of Results

The researcher conducted a pilot study prior to the commencement of the main study. As this presented no challenges, the pilot study was included in the sample. Following this, the researcher conducted a further nine interviews.

The interviews were transcribed within 24 hours of the interview period to ensure correct recall of information. Themes and sub-themes emerged. An independent coder verified the findings of the analysis.

4.3.1. Discussion of Results

The three objectives of the study were used to group the themes as follows:

- Establishing the familiarity of health care providers with MDR-TB
- Establishing their knowledge of treatment guidelines followed for patients suspected with Multi-drug resistant TB
- To determine how MDR-TB patients are managed (Guideline implementation)
- To investigate obstacles that health workers face in implementing the MDR-TB guidelines.

Table 2: Themes on familiarity with MDR-TB

Themes	Sub-themes
Familiarity with MDR-TB	Level of competence, Levels of understanding Training and workshops

4.3.1.1. Theme on Familiarity with MDR-TB

Themes that emerged from the data on familiarity of the respondents with MDR-TB were as follows: Level of competence, level of understanding and training and workshops.

4.3.1.1.1. Level of competence

Health care providers interviewed were all hands on TB programme staff; nine professional nurses including one enrolled nurse were interviewed. Only one person was interviewed per facility. All were focal TB persons at the facility. The length of time they spent on the TB program was not established.

4.3.1.1.2. Level of understanding and training

There was an overall understanding of MDR-TB with some staff identifying possible scenarios that would lead to the development of MDR-TB and also identifying it as a laboratory diagnosis with resistance to both INH and Rifampicin.

Data revealed that some professional nurses received training on MDR-TB. Others had no specific training; it had either been included in general TB training or as one professional nurse told the researcher:

” I have been to a workshop for general TB specifically for MDR no but we learn as we go, we read the books and we have guidelines on how to diagnose and manage MDR-TB.”

They all agreed that specific training on MDR-TB was necessary as the training would better equip them in management of their patients.

The researcher used the perception of how much MDR-TB was diagnosed at the facility as a proxy for the perception of MDR as a problem. This perception ranged from rare, specifically at town clinics, for example:

“No it’s not a lot it’s +/- 6 patients since 2010 “

Apparently they do not handle the patients’ post-diagnosis, as the patients return to their villages after diagnosis, to common especially in township clinics in one facility the response of the professional nurse was:

” Yes we do, like for an example in this past week since we have started with the new test which is called geno typing we have diagnosed 5 MDR patients”

4.3.2. Theme: Guideline utilisation at Facility

Table 3 Themes on Guideline utilisation at clinics

Theme	Sub-theme
Guideline utilisation at facility	Identifying MDR-TB Suspects Management of MDR-TB suspects Patient management on confirmation of MDR-TB
Infection control Measures	Infection control practices

4.3.2.1. Identifying MDR-TB Suspects:

The top priority for the control and ultimately elimination of MDR tuberculosis is prevention. Contact tracing and monitoring is an important role in a primary health care facility. Measures- contact tracing and monitoring include: listing and examining all contacts, testing those with symptoms and re-testing contacts with symptoms for TB and drug susceptibility six monthly for two years. Once MDR-TB has emerged, however, urgent measures are required to curb its effects on efforts to control the disease (WHO, 2008). Also South African Department of Health (2011:23) states that Health-care workers in all facilities must increase case finding activities in relation to drug sensitive TB and they must recognise that patients who fail to respond to first-line therapy may be drug resistant and need to be managed quickly and appropriately.

The main suspects including patients who have had TB before and those whose sputum remain positive at the end of intensive phase of treatment, were readily identified as suspects as well as those who were diagnosed as HIV positive.

MDR-TB patients contacts were not readily identified as MDR TB suspects, for most people this only came to light after probing and the response at one facility was as follows: *“Usually the contacts we usually call them to come to the clinic too and they resist most of them they will tell you that they are not sick they cannot come to the clinic because*

they are not sick. You will find that they are the ones who become MDR for in the long run you will find that this person is sick.”

In one facility the professional nurse expressed her concern that they missed some patients as they did not have a private place where the patients could produce a sample of sputum on the spot

” For my facility if we could have coughing booths I think it will be fine for our clients might, we might get the specimen on the spot because some of them they will say no I cannot cough I cannot do this because we say they must go outside around the corner and cough and others are not comfortable with that you know moss some are teachers all the professionals they also come here. If we can have coughing booths so that they can cough there even our suspect rate, specimen collection for our own cases suspect rate can increase.”

However, there were obvious efforts by the professional nurses in the clinics visited at contact tracing and screening of contacts of patients identified with MDR-TB.

4.3.2.2. Management of MDR TB suspects

When MDR-TB is suspected on the basis of history or epidemiologic information the patient’s sputum must be subjected to culture and anti-TB drug susceptibility testing (Sharma and Mohan, 2011:6). The National Tuberculosis guidelines (2008:812) state that MDR-TB is a laboratory diagnosis, made only by TB culture and drug susceptibility testing. Early, prompt diagnosis of MDR-TB through sputum should be sought in the following circumstances: MDR-TB contacts who are symptomatic for TB, TB suspects who give history of close contact with an MDR-TB case, Symptomatic clients from high risk groups including health care personnel, laboratory personnel and prisoners, any client on TB treatment in whom there is a clinical deterioration despite good adherence.

From the key informant interviews the researcher elicited information on how the facilities detected MDR-TB on patients from the investigations they performed, the infection control advice given to patients and the subsequent referral to MDR centres for those confirmed cases.

The following statements affirm above information.

“Yes the patients coughed in July and they came back we usually ask them to come back they usually come back after 6 weeks that’s when we found out that they were MDR”

“What we do we take sputum for culture and DST, educate patient on precautionary measures that he or she has to take to prevent the family or relatives to contract MDR-TB. When the results for positive MDR come back patients should then be notified as MDR patients and should be started on treatment as soon as possible.”

“Let me put it this way when we are suspecting we take those three bottles so that even if the patient is positive on AFB we don’t take too long to wait for culture and sensitivity since we have seen that there are so many MDR patients in the community. And what we do if it happens that the results comes in which is about 6-8weeks what we do the results come and they will tell you that the patient is resistant to INH and Rifampicin so we call the client we explain the results to the client and inform the client that he has to be admitted in Santa.”

4.3.2.3. Patient Management upon confirmation of MDR-TB

In the interim between the confirmation of the diagnosis of MDR-TB by laboratory results and the start of MDR-TB treatment at the specialised centres, all the facilities seemed to be following the same procedure which is:

- While all TB patients received the same infection control message to prevent the transmission of any form of TB, when the diagnosis of MDR-TB was confirmed in a patient, the measures seemed to increase to include the use of masks by both the patient and the health care provider.
- All the clinics referred their confirmed MDR-TB patients to Fort Grey Santa Hospital which is a specialised MDR-TB centre.
- The professional nurses had to fill in admission forms for the patient and fax the forms through to the centre. If a bed is available then the patient is transferred to the centre; if a bed is unavailable as is usually the case, the patient is issued the treatment at the centre and the treatment is initiated at the clinic, although current guidelines stipulate that all drug resistant TB

patients be hospitalised for at least six months (South African Department of Health. 2011).

4.3.3. Theme: Effective Infection Control Measures

Good infection control practices include well ventilated consulting rooms, well ventilated waiting areas, ultraviolet germicidal irradiation (UVGI) lights and extractor fans where possible and respiratory protection tools available at all times, for example surgical masks for patients and N95 respirators for health care workers.

4.3.3.1. Infection control practices

According to Bock, Jensen, Miller and Nardell (2007:108-113) work practice and administrative control measures are the first line of defence against TB transmission within facilities caring for people with HIV infection. Their goal is to prevent exposure of staff and patients to TB and to reduce the spread of infection. Components of good work practice and administrative control include the following;

- Wearing of N95 respirators by health workers who are in close contact with MDR-TB patients
- Keeping clinical evaluation brief and where ever possible conduct these in a well-ventilated room, with as much distance as possible from the patient
- Educate the patients on cough hygiene and avoid close contact
- Provide patients with surgical masks when close contact is required
- And collect sputum outside observing prescribed infection control precautions

(South African Department of Health 2011 :34)

Attempts at infection control in facilities were observed by the researcher; these included open waiting places for patients and open windows. Sissolak, Marais and Mehtar (2011: 2) state that TB infection prevention and control protocol has the potential to reduce the risk of TB transmission in settings with limited resources. The researcher did not observe the prevalent use of masks at any of the facilities, either by staff members or patients. Although all staff consistently gave advice on infection

control they believe that some of it is impossible to implement because of social interaction and context:

- Patients are unwilling to use masks as they are afraid of the stigma
- The programme staff is also unable to use masks as this is perceived as uncaring by the patients
- Although they advise isolating the patient at home, they know this is impossible because the living conditions at home do not allow it.

Other hindrances to infection control at the facilities included at one clinic a complaint about the size of the examination room which was deemed inadequate to maintain optimal distance between provider and patient and an inability to fast track TB patients through the waiting area either due to complaints from other patients or due to shortage of staff. Effective TB-IPC requires adherence to measures which should be regarded as a chain of responsibilities, involving health care workers and decision makers as well as patients and society (Sissolak et al: 2011:2).

4.3.4. Theme: Obstacles to the management of MDR-TB patients

Table 4: Theme Obstacles to the management of MDR-TB patients

Themes	Sub-themes
Disruption of treatment	Alcoholism, Migration, Poverty
Tracing of patients	Transport
Staffing of the TB program	Shortage of staff

4.3.4. Obstacles to management of MDR-TB patients

The emergence of drug-resistant TB has brought with it diverse perspectives concerning the way in which the disease should be managed. According to Ormerod (2005:21) principles for managing cases of MDR-TB in developed countries has been set out. The main features are as follows: Such cases should be treated by physicians experienced in treating complex cases with drug resistant organisms, infectious cases should only be treated as inpatients and in facilities with full negative pressure ventilation and cases should be managed in close collaboration with national/regional mycobacteriology services utilising drug susceptibility data. According to the South African Department of Health (2011: 8) recent studies conducted in South Africa suggest that MDR-TB patients are not being effectively treated and cured; this is contributing to the development of XDR-TB.

The current form of management (centralised in specialised units) has been fraught with many challenges, including:

- Delays in treatment initiation due to long waiting lists for admission to specialised hospitals increase patients' suffering, the risk of death and chance of transmission of DR-TB.
- Nosocomial transmission of MDR/XDR-TB in health facilities when infection control measures are not implemented adequately and substantial evidence that more than half of all XDR-TB infections are acquired in hospitals.
- Refusal of hospitalisation or absconding by some patients due to lengthy hospital stays, lack of recreational facilities in hospitals or patients' responsibilities to attend to family needs and demands. A recent study undertaken in KwaZulu-Natal indicate that 70% of MDR-TB patients' households are headed by females, who cannot be admitted to hospital for a long period due to responsibilities such as caring for young children.
- Patients feel that monthly follow up trips to the centralised hospitals for monitoring and medication are lengthy, arduous and unpleasant, contributing to poor treatment adherence.

4.3.4.1. Theme: Disruption of Treatment

Adherence to treatment means following the recommended course of treatment by taking all the medication, as prescribed for the entire length of time necessary. Adherence is the key factor in treatment success (South African Department of Health. 2009: 45). Sharma and Mohan (2011: 1-15) in their study highlight demographic factors such as age, sex, marital status, education level and socioeconomic status correlate to some degree to treatment adherence. On the other hand certain factors such as employment, migration, lack of DOT support alcoholism and poverty do predict non-adherence to treatment.

Employment

DOT is practised in the belief that by directly observing the patient consume all required medication, a full treatment regimen will be ensured thereby reducing the risk of treatment failure. Some patients are unable to attend clinic for DOTS medication because they are employed. For example:

" it's usually a situation where a person gets a job maybe that person was not working and then when he start to get a job you will find that the person will not come maybe for two days because this person is nursing this job."

They also detest the idea of leaving their medication with their employer for fear of stigmatisation.

Migration

In South Africa, it is estimated that 15–20% of MDR-TB patients default from treatment. MDR-TB treatment default is of particular concern in a setting with a large number of human immunodeficiency virus (HIV) infected persons who can become infected and ill with MDR-TB quite rapidly

They access their treatment at urban clinics giving incorrect residential information while in fact they come from the rural areas. The clinics also complained that these patients go back to their homes without informing the clinic so they cannot be traced. The views of the professional nurses on the issue of migration are also affirmed by

Holtz, Lancaster, Lazerson, Wells, Thorpe and Weyer (2006:649-655) who stated that changing residence is a marker of unstable socio economic position as many South Africans migrate between locations in search of work.

e.g.” also our patient’s mos they are like any others they will not be in the same address, they will give you this address and when you visit you will not find the patient there and you will be told by the relatives that they no longer stay there.”

“...most challenge is the defaulting of the patients because most patients are from the Transkei they come here because they are sick and when they find that they are alright whether they finish the treatment or not they just go to the Transkei without reporting.”

DOT Support

Directly observed treatment is an important element in the WHO recommended policy package for TB control. DOTS is practised in the belief that by directly observing the patient consume all required medication, a full treatment regimen will be ensured, thereby reducing the risk of treatment failure.

Although most patients bring a relative as a treatment supporter, others are allocated DOT supporters for treatment support at the facility. Some of the patients chase these DOT supporters away from their homes, for example:

“Our patients undermine the DOT supporters because they would say I want to be visited by a sister.” Ormerod (2005) states that the approach of the DOTS-plus programme requires a sustainable and functional national TB programme, drug availability and support for drug resistant monitoring.

Alcoholism

There was concern with patients continuing to take alcohol while on MDR-TB treatment at three clinics. For example:” *the most problem we have especially in this community is that patients takes too much liquor and they will when they are visited at home they will ask you that how do you think I can take treatment when I have taken liquor like this and then the problem lies.”*

Poverty

In this study poverty means a condition where people's basic needs for food, clothing, and shelter are not met. Poverty was cited as one of the reasons for patients' non-adherence to treatment. In one of the facilities the professional nurse was concerned that there was considerable unemployment.

"It's just like that you find that people are suffering here they don't even have money to buy food, they are really struggling people are struggling here that's where the problem lies."

Another professional nurse expressed concern about patients who reported that they had little food at home with which to take their tablets.

"You know our MDR-TB patients or let me say all our TB patients have a nutrition problem at home most of them are unemployed and being unemployed they still have the conception that they cannot take tablets on an empty stomach."

Although the soup kitchen increased adherence because many patients needed the food handed out, its funding was stopped and now there is nothing for the patients.

4.3.5. Theme: Tracing of Patients

Retention of patients in a long term care and adherence to treatment regimens are a constant challenge for TB programme in Sub-Saharan Africa. According to Ohkado, Sugiyama, Murakami and Harries et al (2009:551-555) Active defaulter tracing is an integral part of TB programmatic control. It is carried out to obtain reliable information about who has truly died, transferred out or stopped treatment and if possible to persuade those who have stopped treatment to resume.

Going to find patients who do not return to the health facility to collect treatment is employed around the world as a strategy to improve adherence, and a systematic

review has shown that the tracing of such patients results in significantly better outcomes than in patients who are not traced.

Tracing of patients especially where there is a heavy case load and a lack of DOT supporters is a challenge. At one clinic the health care provider told the researcher that it was very difficult to leave the clinic to go out for home visits especially when the outreach teams' contracts expired and were discontinued. At one clinic the nurse hoped that they could be supplied with more staff and vehicles to visit the patients.

” More staff and vehicles to visit the patients I think that would be better but we cannot leave the clinic because most of our clinics are two sister clinics so the other one has to remain with the patients and the other one would be sick or on leave, so there is just no one.”

At this clinic only one car was available to trace patients and to complete other duties but it was shared among other clinics.

4.3.6. Theme: Staffing of the TB program

TB control programs should have adequate and appropriate staff to ensure the fulfilment of TB control activities. The number and type of staff for these programmes may vary, depending on the local TB morbidity and the specific needs of the community. Staff is necessary for program planning, program funding, record-keeping, education, and coordination of health department activities with other

TB control activities in the community. All TB control programmes should have a designated program manager. These programmes should have access to, or have on staff, epidemiologists qualified to conduct data-based evaluation and surveillance activities.(Morbidity and mortality weekly report, 1995:44) For this study shortage of staff means a shortage in the number of professional nurses with the necessary skills to implement the national MDR-TB guidelines

4.3.6.1. Shortage of staff

Some form of staff shortage in the TB program was identified by all the clinics with subsequent different perceived impacts on the performance of the programs. At one clinic it impacted on the program administration and documentation and the need was expressed regarding a focal person:” *I think if they can add more staff like here now I’m working alone I’m doing MDR and normal TB you see sometimes you find that with normal TB it’s about 164 patients and MDR it’s about 29 patients. You see it’s too difficult to deal with MDR alone and then it’s more with our normal TB patients that’s where I struggle, is mostly because I’m alone here and also I’m a staff nurse and I’m supposed to do everything with TB patients. If they can just add more staff like there must be a Sister working with me only doing TB, because now this clinic is like the hospital really the way things are happening here this clinic it’s like a hospital”*. At one clinic the impact was staff frustration, “*They are just adding I find that there is no improvement because again the problem it’s the area that we are in you know mos (amagali)the ghetto’s they are close together sometimes you find that the shacks next to the road it’s really overcrowded that when I find that TB it’s going to be very difficult to treat because when the patient comes back from Santa he goes back to the same situation that she was in before and I don’t think he can be cured like that. Because you find that he stays in the same TB that he got there are no changes.”*

4.4. Discussion

The goal of the study was to explore and describe strategies used by professional nurses to implement the national treatment guidelines to prevent, detect and manage Multi-drug resistant tuberculosis patients at the Buffalo City Metropolitan Clinics in East London.

Objectives of the Study were to:

- Establish the knowledge of National treatment guidelines followed for patients suspected with multi-drug resistant tuberculosis
- Explore and describe strategies used to implement the national guidelines on preventing and managing MDR TB patients

- Explore and describe the challenges faced by health professionals (nurses) in implementing the national guidelines on preventing and managing MDR TB suspects and patients.
- Based on the results of this study, to make recommendations for effective management of the MDR-TB.

The conceptual framework of this study was discussed in chapter two where a literature review was undertaken to find the niche for the study among the existing body of knowledge about Multi-drug resistant TB. The study used the evidence based practice model. The model provides a pragmatic theory driven framework for empowering clinicians in the process of evidence based practice (Haynes et al, 1996: 881-6). The problem statement of this study arose due to the observations of the researcher of the increase in the number of multi-drug resistant tuberculosis patients being treated at clinics that have been infected by a resistant strain of the TB bacillus. Luhalima et al (2008:34) state that the current rate of tuberculosis infections which occurs as a result of new infections as well as re-infections of patients is of concern to the disease control and policy making bodies of South Africa. Questions regarding the effectiveness of tuberculosis policies and programmes emerge at all times. Holtz (2008, 382) in his study on tuberculosis epidemiology states that the emerging worldwide epidemic of multi-drug resistant and the extensively resistant TB is the by-product of ineffective or poor organised system for TB control.

This study intended to explore the effectiveness of the health systems in East London in the prompt identification and management of MDR-TB. The findings were based on the results of the data analysed. The discussion of findings included the summary and interpretation of findings together with recommendations in relation to the questions raised in the introduction, research objectives, and recommendations (Bless, Higson-Smith, & Kagae 2006: 60-61).

Four themes emerged from the study.

Themes	Sub-themes
Familiarity with MDR-TB	Level of education, Level of understanding, Training and workshops,
Guideline utilisation at facility	Identifying MDR-TB suspects, Management of MDR-TB suspects, Patient management upon confirmation of MDR-TB, Staffing of the TB program, tracing of patients
Infection control measures	
Obstacles to management of patients	Disruption of treatment, poverty, alcoholism, DOT support, migration, employment and transport.

The researcher was interested to know whether guidelines were available at the clinic and were being utilised. On the theme familiarity with MDR-TB the findings revealed that all the professional nurses allocated at the TB units had a good understanding of MDR-TB with some staff identifying possible scenarios that would lead to the development of MDR-TB and also they were able to identify it as a laboratory diagnosis with resistance to at least INH and Rifampicin. Other professional nurses indicated having received training on MDR-TB. Others had not had any specific training; it had either been included in the general TB training or as one professional nurse indicated

“We learn as we go we do learn, we read the books sometimes”

This is similar to a study conducted by Luhailima et al (2008: 35) where participants mentioned that there were insufficient workshops and lack of in-service training on policy issues and implementation strategies were identified as contributing to lack of knowledge among professional nurses. While in-service training and workshops were identified as the main mechanism for government to share policies and guidelines, enabling every professional nurse to attend the workshop was a challenge. Participants also raised their concern about insufficient information related to existing MDR-TB policies.

The assessment regarding the knowledge and implementation of national treatment guidelines for patients' suspected of having multi-drug resistant tuberculosis at the facility by professional nurses was made. The data revealed that the professional nurses were able to identify suspects. The main suspects included patients who had had TB before, those who were HIV positive and those whose sputum remained positive at the end of the intensive phase of treatment.

The challenge identified was that the MDR-TB patient contacts were not readily identified as MDR TB suspects because of the resistance experienced by professional nurses from family members of MDR-TB patients; they refuse to be tested until they themselves become sick. Contacts of patients with infectious tuberculosis are at increased risk of infection and disease. Therefore contact investigations are recommended for all patients with confirmed active TB reported in South Africa. The main goal of contact investigation is to identify secondary cases of active tuberculosis and latent TB infections among contacts so that they can begin therapy (South African Department of Health 2009:56).

The WHO-recommended Stop TB Strategy provides the framework for treating and caring for those who are sick and controlling the epidemic of drug susceptible and drug resistant disease. The DOTS approach which underpins the Stop TB Strategy call for political commitment to national programmes designed to control disease by means of early diagnosis with the use of bacteriologic testing, standardised treatment with supervision and patient support. From the key informant interviews the researcher elicited information on how the professional nurses detected MDR-TB

patients, the investigations they performed, the infection control advice given to patients and subsequent referral to MDR-TB for those TB patients.

According to all the respondents, mycobacterial culture and sensitivity tests were performed on all patients suspected to have MDR-TB. It was carried out on the first sputum for patients coming in for re-treatment. If for any reason this procedure was missed as one respondent told the researcher, it is done during the course of treatment.

Prioritizing control of Tuberculosis Infection

According to Nathan et al (2010:1050-1058) as a result of inadequate infection control measures there is an on-going transmission of MDR-TB and XDR-TB in health care facilities and congregate settings (e.g. prisons). They further state that to date virtually no country with high burden of TB has implemented systematic measures to reduce the risk of TB transmission in health facilities. This statement is supported by the findings of the study which identified that TB infection control measures were not adequately adhered to. All health care facilities that admit patients with TB or patients suspected to having TB should implement TB control measures that complement general measures of infection control, especially those which target other airborne infections like wearing of respirators by professional nurses in close contact with infectious patients.

On guideline utilisation at the facility, the findings revealed that all the professional nurses interviewed were knowledgeable about the guidelines but implementation was hindered by various factors, for an example unavailability of beds at the specialised units, alcoholism on the part of the patient, poverty, unemployment, patients giving incorrect details, insufficient number of vehicles to conduct patient tracing and staff shortages.

4.4 Conclusion

The analysis and presentation of data collected was dealt within this chapter. Themes and sub-themes were identified and described on strategies for implementing guidelines. Interviews were the source of information to explore the strategies used by professional nurses in the implementation of national guidelines on management of multi-drug resistant tuberculosis. In the next chapter, conclusions, limitations and recommendations pertaining to this study will be presented.

CHAPTER 5: LIMITATIONS RECOMMENDATIONS AND CONCLUSIONS

5.1. Introduction

In the previous chapters, the researcher explained the reasons for this study and presented the applicable research methodology and data analysis. The results were also presented. In this chapter the researcher presents discussions, limitations of the study and recommendations.

5.2. Limitations of the study

The limitations of the study were related to the following factors: Unavailability of professional nurses to attend workshops during the data collection period. Contact time was limited because the professional nurses had to use their working hours for participation in the study. Only the twenty nine facilities of the Buffalo City Municipality were included in the study and therefore the results of the study cannot be generalized to the broader community of professional nurses.

5.4. Recommendations

Recommendations based on this study will be discussed under the following headings: Training and Education, Clinical Application and Research

5.4.1. Training and Education

Provide specific training on MDR-TB

Since staff at grass roots level has to implement the policies and guidelines as soon as they become available they should be familiarized with the content of the policies and how to implement them. Training of all health care workers including student nurses should be done. Such training is urgently needed to enhance the existing knowledge base among professional nurses who are clearly eager to improve TB patient and patient outcome. This training should aim at increasing the index of suspicion for MDR-TB amongst the primary health care providers, clarifying management of TB cases that are likely to be MDR-TB. It should be very interactive

to allow clarification of issues that the clinics are struggling with and it should include the rationale for the guidelines.

5.4.2. Clinical Application

- Monitor and revamp community DOT programs

While South Africa records a 100% DOTS coverage, some of the issues arising in some clinics allude to some possible disruption in the program as envisioned and documented in the national tuberculosis guidelines.

- Improve Human Resource Management

Scarcity in human resource is acknowledged even at policy making level and attention does need to be paid to staff shortages in areas that may be impacting negatively on the TB program; however care must be taken to avoid apathy in this regard by existing staff and efforts must be implemented to improve the productivity of available personnel. To achieve this there is a need for good managers or supervisors at the facilities who must pursue excellence themselves and expect and empower their staff to do the same.

- Improve staff productivity by availing transport

Where nurses have to walk to provide TB treatment at homes there is subsequent time wasting. Where possible this limitation should be addressed to not only increase productivity of staff, but to facilitate the tracing of patients who may otherwise default treatment leading to the spread of MDR-TB.

- Address alcoholism in adherence messaging for TB patients

This patient factor should be monitored closely in TB patients as a whole and help should be provided to patients with an alcohol problem. Alcohol has been associated with the development of drug resistance and if the emergence of MDR-TB is to be reduced there is a need to control alcohol intake in patients. This at the very minimum should be incorporated in the adherence messages provided to patients. Research is also needed to further explore this issue in our setting in our setting and to find innovative ways to integrate TB management and prevention with control of alcoholism.

5.4.3. Collaboration with other stake-holders

Functional partnerships between the Department of Social Developments and the Department of Housing need to be fostered in the management of TB patients, to assist patients who are unemployed to access food parcels and houses for those living in squalid conditions.

5.4.4. Further Research

Broader scientific research needs to be conducted to identify other problems in connection with TB guidelines implementation at local level in the Eastern Cape Province.

5.5. Conclusion

In conclusion, the findings of this study have shown that professional nurses are doing their best to make the TB program efficient. However, there were notable constraints with regards to the management of MDR-TB patients and the overall TB program including but not limited to health system factors, MDR-TB specific training, staff shortages, dysfunctional community DOT program, shortage of beds at the MDR-TB treatment centres, and patient factors, defaulting, migration for various reasons and alcoholism. All these constraints call for intensified strategic management at both policy and facility level.

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Appendix 1: University of Fort Hare Research & Ethics Committee Clearance Certificate

OFFICE OF THE DEPUTY VICE-CHANCELLOR:
ACADEMIC AFFAIRS AND RESEARCH
Private Bag X1314, Alice 5700
Tel: 04060 22403
Fax: 0866282944
tsnyders@ufh.ac.za



UFH/UREC, 11 - REC-270710-028

Application for clearance from the University of Fort Hare's Ethics Committee

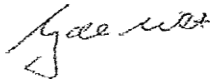
Project title: Strategies used to implement the national guidelines on preventing and early management of multi-drug resistant tuberculosis (MDR-TB) at the Buffalo City Municipality in East London

Chief Researcher: Patela Giyose

Supervisor/Co-supervisor: Dr N Tshotsho

Date of application: 29 March 2012

Having consulted the Dean of Research, I hereby grant permission to conduct the research.



Professor G de Wet
Deputy Vice-Chancellor
Chairperson of the interim Ethics Committee

10 April 2012

Appendix 2: Approval Letter from Department of Health

From:

To: 0437227785

25/05/2012 10:19

#904 P.001/001



Eastern Cape Department of Health

Enquiries: Zonwabele Merile

Tel No: 040 608 0830

Date: 25th May 2012

Fax No: 043 642 1409

e-mail address: zonwabele.merile@impilo.scprov.gov.za

Dear Ms P. Giyose

Re: Strategies used to implement the national guidelines on preventing and early management of multi-drug resistant tuberculosis (MDR-TB) at the Buffalo City Municipality in East London

The Department of Health would like to inform you that your application for conducting a research on the abovementioned topic has been approved based on the following conditions:

1. During your study, you will follow the submitted protocol with ethical approval and can only deviate from it after having a written approval from the Department of Health in writing.
2. You are advised to ensure, observe and respect the rights and culture of your research participants and maintain confidentiality of their identities and shall remove or not collect any information which can be used to link the participants.
3. The Department of Health expects you to provide a progress on your study every 3 months (from date you received this letter) in writing.
4. At the end of your study, you will be expected to send a full written report with your findings and implementable recommendations to the Epidemiological Research & Surveillance Management. You may be invited to the department to come and present your research findings with your implementable recommendations.
5. Your results on the Eastern Cape will not be presented anywhere unless you have shared them with the Department of Health as indicated above.

Your compliance in this regard will be highly appreciated.


DEPUTY DIRECTOR: EPIDEMIOLOGICAL RESEARCH & SURVEILLANCE MANAGEMENT



Ikumva eliqagambileyo!

Appendix 3: Permission letter from Buffalo City Sub-District



Amathole District

Buffalo City Sub-district:

Enquiries: Mrs N.V.Nelani

9 Vincent Road, Vincent, East London, 5200, Eastern Cape
 Private Bag x 9015, Main Post Office, East London, 5200, Eastern Cape
 Tel No. +27 (0)43 711 1100 Fax No. +27 (0)43 721 1972
 Website www.ecdoh.gov.za

To:	Mrs.P Giyose
From:	Buffalo City Sub-District Manager
Subject:	Agreement for research study to be conducted in Buffalo city Sub District
Date:	16/08/2012

Dear Mrs. Giyose

Approval is herewith granted to you to conduct research in Buffalo City Sub District as requested. Kindly familiarize yourself with the conditions below before commencing with your study.

1. The researcher will conduct the study without compromising client's confidentiality and the smooth running of the service.
2. The researcher will not provide/publish any reports/statements without prior discussion with and permission of the sub district.
3. A copy of a letter of approval by the ethics committee will be submitted to the sub district office before commencing the study.

I accept the conditions as stated in the abbreviated version of Department of Health Agreement Clause for researchers.

PATELA GIYOSE

Full Name & Surname

[Signature]

Signature

22/08/2012

Date

JOJI MICHAEL

Witness Name & Surname

[Signature]

Signature

22/08/2012

Date

Appendix 4: Consent Form

Consent Form.

Request for consent to participate in a research study:

Hello my name is Patela Giyose and I would like to spend about 30-40 minutes of your time discussing the TB programme in your facility. This discussion is part of an investigation into the management of patients treated for multi-drug resistant tuberculosis(MDR-TB) at various health care facilities and will be conducted in facilities here in Buffalo City Metropolitan Municipality. A TB nurse or any related staff dealing with TB will be interviewed.

The study aims to find out how these facilities manage patients who are suspected to have MDR-TB or are confirmed MDR-TB patients. Your input in the study will benefit your institution and the overall TB programme.

I will administer a questionnaire with a few questions to you. I will use a tape recorder to capture our discussions to assist in the analysis of data. The information on this questionnaire as well as the interview will be handled confidentially. I will also ask to see all the policies and guidelines available to you. No patient identifying information will be collected.

Participation in this study is voluntary; you have the right to withdraw at any time or refuse to participate entirely.

Do you have time to talk to me now?

Yes[Y]

No [N]

Signature

Date.....

Appendix 5: Interview Guide

Exploration of strategies used by a professional nurse to implement the National Guidelines on Prevention, early detection and management of Multi Drug resistant Tuberculosis

Section 1: Identification of facility

Facility Name...

Date of Interview...

What is your position in this facility?

- Professional Nurse [PN]
- Enrolled Nurse [EN]
- Enrolled Nursing assistant [ENA]
- Nursing Manager [NM]

Section 2: Management of MDR-TB

2.1. What is MDR-TB?

.....

2.2. Have you received any training on MDR-TB?

- Y**
- N**

2.3. With the training that you received what were the aspects that were included?

2.4. Do you diagnose many MDR-TB cases in your facility?

- Yes
- No
- Not Sure

2.5. How do you implement the guidelines for early detection and management of MDR-TB?

.....

Interview guide; may probe if necessary i.e. less than three answers

2.6. What challenges have you encountered in the implementation of the guidelines?

.....
.....
.....
.....

2.7. What would you recommend to ensure the effective implementation of the guidelines?

.....

2.8. What other important information do you want to raise relating to this discussion?

End: Thank you for your time

